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# **Assessment Of Land Use Impacts On The Oak Ridges Moraine**

**Background Study No. 11  
To The Oak Ridges Moraine Area Planning Study**

*Prepared by*

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and the  
Ministry of Natural Resources**

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## **NOTE TO READER**

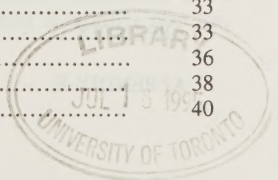
Background Study No. 11 was prepared to assist the Oak Ridges Moraine Technical Working Committee in the development of a strategy to protect and manage the Oak Ridges Moraine Area.

M. M. Dillon Limited was retained by the Ministry of Natural Resources to develop an initial discussion draft of the document. Since then, the document has been extensively modified and edited by the staff of the Greater Toronto Area District Office of the Ministry of Natural Resources under the direction of the Technical Working Committee.

The background study's main purpose was to serve as a focus for discussion to assist in the formulation of policies for the draft Oak Ridges Moraine Area Strategy. The ideas and suggestions in this document do not constitute the formal position of either the Ministry of Natural Resources or the Oak Ridges Moraine Technical Working Committee.

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## EXECUTIVE SUMMARY

The "Assessment of Land Use Impacts Study" identifies the major types of land uses that can have an impact on the natural and cultural heritage of the Oak Ridges Moraine. These include major outdoor recreational areas, agriculture, renewable and non-renewable resource use, linear utilities, and urban land uses. This study describes each type of land use and explores the negative and positive impacts of each on the socio-economic and natural environment, as well as methods of overcoming or mitigating negative effects.


Planning considerations or implications for each use are described based on an evaluation of net effects or residual impacts that will occur after mitigation. For example, many impacts have been associated with golf course development, particularly on aquatic resources. Proper planning to avoid environmentally sensitive areas and good design and management can substantially reduce the negative effects this land use has on the Oak Ridges Moraine.

Urban land uses in the Moraine are described according to location and level of servicing. These include: urban uses in rural areas not on municipal services, urban uses in hamlets and villages not on full municipal services, and urban uses in town and cities on full services. These broad categories are used as a basis to describe the positive and negative impacts associated with urban uses. As with the other land uses, methods of overcoming negative effects are examined. Based on this information, the advantages and disadvantages of development for urban use areas are described.

The results of the evaluation and comparison of urban land use areas produced three general conclusions. First, concentrated development and/or intensification in settlement areas on full services, generally, has the potential for fewer negative effects than urban uses in the rural areas and hamlets. Second, there are some areas within the Moraine in which development should be avoided due to their sensitivity or significance. Third, as there is a demand for all types of housing opportunities, not only in towns and cities where impacts are the least, adequate planning controls must be in place to ensure that effects to the economic, social and natural environment are minimized.

Planning implications, based on these conclusions are discussed, including initiatives that need to be undertaken by the Province and the municipalities.

Relevant research, policies and guidelines relating to the various land uses are explored. Conclusions and observations are provided about the current problems or deficiencies in the existing legislation and policies that may hinder the ability of agencies to properly plan for, evaluate, and monitor changes in land use impact.



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## 1.0 INTRODUCTION

In June 1991, the Minister of Natural Resources in conjunction with the Ministry of the Environment and Municipal Affairs, announced the initiation of a Planning Study leading to the development of a long-term strategy for the Oak Ridges Moraine within the Greater Toronto Area (GTA). The Moraine within the GTA is under direct pressure from urban development and associated uses and is the focus of the Planning Study.

The Oak Ridges Moraine is a prominent ridge of glacial deposition that runs east and west through the centre of the GTA. The Moraine serves several important functions, which makes its wise use, management and protection of its features essential. Its most critical ecological functions include natural habitat and the conservation of water resources. From a more human oriented perspective, the Moraine contributes to the visual character of the area and provides opportunities for recreation.

Since World War II, the Moraine has been the subject of rapid land use change. With at least another 2.5 million people moving into the GTA in the next 30 years, pressure for change in land use will continue within the Study Area. These pressures will range from the demand for recreation and housing, to the need for affordable, local aggregate materials to serve the growing urban areas and associated infrastructure.





## 2.0 STUDY OBJECTIVES

The purpose of this study is to identify the types of land uses that have an impact on the natural heritage of the Oak Ridges Moraine, and to explore planning strategies for land use activities that should be incorporated into the long term Oak Ridges Moraine Area Planning Strategy.

The study has a number of objectives which are as follows:

1. To provide a definition and description of the nature and character of land use in the Moraine, including:
  - Major Outdoor Recreational Areas
    - ski hills
    - golf courses
    - other major outdoor recreational uses
  - Parks/Natural Areas
    - trails
    - picnic areas
  - Agriculture
  - Forestry
  - Resource Extraction
    - aggregate extraction
    - peat extraction
    - topsoil removal
  - Water Taking
  - Linear Utilities
  - Urban Land Uses
    - urban uses in rural areas
    - urban uses in hamlets and villages
    - urban uses in towns and cities
2. To describe the impacts (both negative and positive) of each of the land uses listed above on the social, economic and natural environmental components of the Oak Ridges Moraine.

3. To review relevant research that has assessed the impact of these types of land uses on the Moraine or on similar types of landscape.
4. To review and summarize relevant policies and guidelines developed to assess and mitigate the impacts of land use types on the environment.
5. To compare the costs, benefits and planning implications of three types of urban land use categories (in rural areas: in hamlets and villages; and in towns and cities).
6. To provide observations on the planning implications of considering the establishment of each urban land use based on its form, character and impact.
7. To provide observations and conclusions about current problems or deficiencies in existing legislation, regulations or policies that may hinder the ability of agencies to properly plan for, collect and monitor changes in urban land use impacts.

### 3.0 LAND USE TYPES

The Oak Ridges Moraine Area presently accommodates a variety of land uses ranging from agricultural to aggregate extraction. As development continues in the Greater Toronto Area, the pressure for more urbanized forms of land use in the Moraine will also increase. Planning for these uses must consider the protection and maintenance of the natural features and functions of the Moraine while allocating a sufficient land base for economic and community growth.

The most prevalent land uses or potential future uses on the Moraine are discussed in this section. A definition is given for each land use. The general characteristics of the use in terms of the land form modifications required, the typical structures associated with the land use, spatial relationships or the general location of the land use in the Moraine and the infrastructure required for the land use are described. Landform modifications include soil removal, tree cutting, vegetation removal, removal/grading of hills, draining or filling of wetlands, or the loss or obstruction of groundwater recharge capacity (OGTA, 1992).

The positive and negative impacts of each of the land uses listed in Section 2.0 are analyzed. A land use impact may be defined as any measurable effect caused either directly or indirectly by a change in the way land is used by people, including the accessory and ancillary activities normally associated with the land use. Such land uses can be perceived as having a range of negative, positive or neutral effects on the health and well being of people or on the environment. Two broad types of impacts were examined: impacts on the socio-economic fabric, and impacts on the natural environment. For each broad group, specific criteria or areas of possible change were considered and are listed below.

- Socio-economic
  - change to economic base of an area, i.e. agriculture
  - tax revenue generated
  - change to level of municipal services
  - change to existing and future business opportunities and jobs
  - effect on potential natural resource use
  - change in accessibility to recreation areas
  - satisfaction of housing demand
  - change to community character, cohesion, structure and stability
  - change to visual characteristics of landform

- Natural Environment
  - atmospheric resources
    - change in air quality and local climatic conditions
  - water resources
    - change in potential for flooding
    - change in potential for erosion and sedimentation
    - change to surface water quality
    - change to groundwater quality
    - change in quantity of groundwater
    - change in baseflow or storage levels of surface water bodies
  - soil resources
    - change to soil structure, permeability and fertility
  - landform resources
    - change to the topography of the area
  - biotic resources
    - change to significant natural areas
    - change to woodlands
    - change to aquatic habitat within watercourses and lakes
    - change to natural corridors and open space linkages

The discussion and analysis of impacts for all the land use types listed in Section 2.0 are analyzed in more detail in Appendices A and B. This analysis is based on the general types of impacts that may be encountered from each type of land use in the Oak Ridges Moraine. For many negative impacts, methods are available to reduce or overcome a negative impact.



## **4.0 MAJOR OUTDOOR RECREATION**

Major outdoor recreation is defined as a land use requiring the installation of buildings and/or structures and the extensive modification of the land surface to provide specialized types of recreational activities.

The two well known common types of major outdoor recreation found in the Oak Ridges Moraine are:

- ski hills
- golf courses

### **4.1 Ski Hills**

#### **(a) Description**

Recreation areas that provide downhill skiing opportunities are in high demand, especially in areas close to large urban centres. This land use has site specific requirements such as length, orientation degree and variability of slope. The landform modifications required for a ski hill facility require the removal of vegetation to accommodate buildings, ski lifts, parking and ski runs. In most cases, some recontouring of slopes is required.

The Oak Ridges Moraine does not possess many hills with the necessary attributes to serve as major vacation oriented facilities. Its ski hill facilities are and will likely continue to serve as weekend, evening or day trip oriented ski areas characterized by somewhat limited ski terrain, relatively easy access to adjacent urban centres and minimum supporting infrastructure.

#### **(b) Environmental, Social and Economic Impacts**

The development of a ski hill adds to the economic base of the local area by the creation of local employment opportunities and increased revenue in local businesses such as gas stations and restaurants. It may also introduce conflicts with existing land uses. Increased traffic, night lights and the visual intrusion of the facility have all been identified as possible impacts on the existing community. Environmental impacts of vegetation clearing and regrading include increased erosion and sedimentation and destruction or fragmentation of certain types of wildlife habitat. The withdrawal of large amounts of water for snowmaking may deplete groundwater or surface water supplies.

Negative impacts can be substantially reduced by avoiding the location of ski hills in significant habitat areas, by minimizing the amount of vegetation cleared and ensuring that water usage is carried out on a sustainable basis that does not interfere with adjacent water users.

The potential positive and negative impacts of a ski hill are summarized in Table A1a.

**(c) Additional Planning Issues and Considerations**

- Ski hills are locationally dependent uses insofar as they must locate in landscapes with the necessary physical attributes. In the Study Area, ski hills are likely to cater to evening or weekend usage, which require close proximity and good access to large urban centres. Such physical attributes are in limited supply in South Central Ontario.
- Potential ski hill sites in the Moraine Area are especially unique since their proximity to the Toronto Area makes them one of the few sites where evening skiing is possible.
- In the past, applications for ski hills have been treated as permitted uses within a more general rural land use category (e.g. open space, rural). This usually meant that only an amendment to the zoning by-law was required to receive the necessary approval. At this advanced stage in the planning process, the ability to require the necessary environmental information and evaluation is limited and the principle of development has been established. Given the significant effect such uses have on the environment, all new ski hill facilities and any major expansions of existing facilities should be the subject of at least an official plan amendment, where the full range of environmental, social and economic effects can be considered.

**(d) Suggested Planning Approaches**

- Any application to establish or expand a ski facility should be viewed as a major change in land use requiring consideration of the full range of potential environmental, social and economic effects.
- As a minimum, all new ski facilities or major expansion of existing ones should require an amendment to the local official plan. They should never be permitted as a use within a more general land use category where they can be implemented merely through an amendment to the zoning by-law.

- Ski hills should only be permitted to occur in the Oak Ridges Moraine Area where the applicant can demonstrate that:
  - no significant natural habitat will be destroyed or degraded,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality of the air, water or soil in the area will occur,
  - removal of tree cover, and grading are minimized, and
  - a sustainable water supply is available.
- Some consideration may be given to recognizing existing ski hills and providing for some expansion provided impacts are minimized.

## 4.2 Golf Courses

### (a) **Description**

Golfing is a sport that is currently in high demand and is growing in popularity. This land use requires large expanses of land preferably with some variability in topography. Landform modifications associated with golf courses often include the clearing of forests and other natural vegetation for fairways, tees and associated buildings and structures.

Golf courses require large acreages of land. A regulation size 18-hole course, for example, requires a minimum of 50 hectares. The land should not be too rugged. A gently rolling area with some trees is preferable. Land that is too hilly, is physically too trying on many players, usually necessitates too many blind spots and is more costly to maintain. Land that is too heavily forested would have to be extensively cleared to provide the necessary fairways and lines of sight. Golf courses should ideally have direct access to a paved, well maintained highway for ease of access. In the past, sandy loam soils were preferred sites due to the ease of maintaining good consistent grass cover as opposed to heavy clay based soils.

**(b) Environmental, Social and Economic Impacts**

The potential positive and negative impacts of a golf course are summarized in Table A1b.

The development of a golf course adds to the economic base of the local area by the creation of local employment opportunities and increased revenues in local businesses such as gas stations and restaurants.

It may also create conflicts with existing land uses.

Historically, golf courses have been viewed as an environmentally benign land use and have been allowed to occupy sensitive land uses such as floodplains and recharge areas. However, there is now considerable evidence to show that the traditional golf course design can have substantial negative effect on the environment, particularly on the quality of aquatic resources. Two key concerns are the uses of large amounts of water to maintain grassed fairways and greens, and the application of chemicals such as fertilizers, pesticides and herbicides, which may adversely affect groundwater and surface water.

Despite the problems that have been identified, it is possible to construct and operate a golf course without detrimental effects on the aquatic ecosystem, if environmentally sensitive designs are adopted. Good planning and design practices include:

- avoiding significant natural features such as stream corridors, steep slopes, wetlands, and mature tree cover,
- minimizing tree clearing and grading throughout the site,
- using efficient water conservation practices that minimize water consumption, (**Note:** Ideally, a golf course should satisfy its water requirements from on site storage facilities that do not require the drawing of water from aquifers, streams or lakes.) and
- adopting minimalist approaches to application of fertilizers, pesticides and herbicides, especially in areas that act as recharge areas.



The golf course design should take into consideration stormwater management, the location of irrigation wells or ponds, an integrated pest management program, a hydrogeological investigation, and include a robust monitoring program. Many of these programs can also be effectively applied to existing golf courses.

The trend in golf course design is towards a more natural site design as opposed to the highly modified and manicured design found in traditional courses. This type of approach is more conducive to the ability to retain ecological form, function and natural features and should be encouraged.

**(c) Additional Planning Issues and Considerations**

- Golf courses tend to be located in rural, rolling landscape where the need for large acreage is best accommodated. However, it is not as locationally dependent as some uses such as ski hills or aggregate extraction. Proximity to large urban centres is often cited as an important siting consideration.
- Too often in the past, applications for golf courses have been treated as permitted uses within a more general rural land use category (e.g. open space, rural). This usually meant that only an amendment to the zoning by-law was required to receive the necessary approval. At such an advanced stage in the planning process, the ability to require the necessary environmental information and evaluation is considerably reduced. Given the significant effect such uses have on the environment, all new golf courses and any major expansion of existing facilities should be the subject of at least an official plan amendment where the full range of environmental, social and economic effects can be considered.

**(d) Suggested Planning Approaches**

- Any applications to create a new golf course or expand an existing facility should be viewed as a major change in land use requiring the evaluation of potential environmental, social and economic effects.
- As a minimum, all new golf courses or major expansions of existing ones should require an amendment to the local official plan. They should never be permitted as a use within a general land use category where they can be implemented merely through an amendment to the zoning by-law.

- Golf courses should be permitted to occur in the Oak Ridges Moraine Area only where the applicant can demonstrate that:
  - no significant natural areas will be destroyed or degraded,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality or quantity of air, water and soil will occur,
  - the removal of tree cover and grading are minimized,
  - a sustainable water supply is available, and
  - a minimalist approach is adopted to the application of fertilizers, pesticides and herbicides.
- Golf course designs should be required to maximize the retention of the natural vegetation and contours of the site as opposed to the more typical manicured/highly landscaped approach.

#### **4.3 Other Major Outdoor Recreation Land Uses**

##### **(a) Description**

Other major outdoor recreation land uses include uses such as campgrounds, go-kart tracks, and athletic playing fields. These land uses, like any other, bring their own special set of characteristics and impacts.

##### **(b) Suggested Planning Approaches**

As with ski hills and golf courses, any recreational activity that will entail the introduction of building and structures, the clearing of natural vegetation and the extensive modification of landform should be treated as a major impact land use that requires a major planning evaluation that is best provided through an official plan amendment.

## 5.0 NATURAL AREAS/PARKS

### (a) **Description**

Natural areas or parks are defined as land areas set aside by public agencies for the purposes of:

- outdoor education,
- passive or low intensity outdoor recreation (e.g. hiking, nature viewing),
- protection of significant and sensitive natural features, and/or
- management of natural resources.

In most cases, modifications to the landform are minimal with the exception of small areas cleared to provide for picnic grounds, roads, trails, and accessory buildings (e.g. outhouses, interpretive centre, shelters). The size of these areas may vary widely depending on the location and the purpose of the park.

### (b) **Environmental, Social and Economic Impacts**

Natural areas/parks are generally considered to be land uses that are exclusively positive in terms of socio-economic and environmental effect. They do without a doubt provide a wide range of environmental, social and economic benefits as are outlined in Table A2.

However, it must be recognized that even such seemingly benign land uses do bear some societal costs, including:

- the costs to taxpayer of managing and protecting such areas,
- the loss of socio-economic opportunities that could be realized if the area were converted to some other use, and
- the excessive manicuring and landscaping costs carried out by some agencies.

The acquisition and protection of such areas by the public sector can be viewed as negative where:

- it becomes prohibitively expensive or burdensome on the taxpayer, and/or
- it prevents the pursuit of other more appropriate land use alternatives.

In addition, certain recreational uses if not properly planned and designed can detrimentally affect the quality of the natural areas, water and soil.

**(c) Additional Planning Issues and Considerations**

- Natural areas/parks are usually located in an area that passes physical attributes that render them suitable for outdoor recreation and/or possess special natural attributes requiring protection.
- Fiscal realities dictate that the areas set aside as park owned and managed by public agencies be limited to areas needed to:
  - provide for the education and recreation needs and demands of the populace,
  - protect natural form features or functions that are otherwise vulnerable to destruction or degradation, and
  - provide for the management of natural resources such as woodlots to provide tangible socio-economic benefits to society.
- All natural areas owned and/or managed by government agencies should have a management plan that ensures that recreation and education uses do not degrade or destroy the ecological form, function of the site.

**(d) Suggested Planning Approaches**

- The Oak Ridges Moraine Area Strategy should provide a framework for determining:
  - what areas should be retained or acquired as natural areas/parks to be owned and/or managed by public agencies, and
  - how management plans will be developed and approved for all publicly owned lands in the Oak Ridges Moraine Area.
- In determining the appropriate use and management of government owned natural areas/parks, the managing agency must ensure that no destruction or degradation of ecological form, function or natural features will occur or interfere with efforts to effectively manage natural resources.



## 6.0 RENEWABLE RESOURCE USE

Renewable Resource Use is defined as the use of natural resources such as forests, soil and water that can, with proper management, be done on a sustainable basis.

Three major renewable resource uses found in the Oak Ridges Moraine are:

- agriculture
- forestry
- water taking

### 6.1 Agriculture

#### (a) Description

Agricultural land is land devoted to the growing of crops or rearing of animals to produce marketable plant or animal products.

The nature of agricultural land varies according to the level of capital investment, the specific type of agricultural activity and the site conditions of the area itself.

Five types of agricultural activities are generally recognized in the Study Area.

- **Specialty Crops** - such as sod, fruit orchards, strawberries that are high value, long term crops requiring special husbandry techniques and growing conditions.
- **Field/Row Crops** - such as wheat, corn, clover, alfalfa that require the preparation of fields on a regular basis (usually annually), for planting, tending and/or harvesting.
- **Intensive Agriculture** - such as mushroom, cut-flowers and greenhouse crops that are produced in indoor facilities that require a medium to high amount of capital investment.
- **Intensive Animal Farming** - such as beef, pork or poultry production which involves the raising of domesticated animals for consumption or for producing products such as eggs or fur. Such animals are raised in confined conditions such as broiler barns, beef feedlots, cages or pens.

- **Free Range Animal Farming** - such as cattle or sheep raising involves the raising of animals for consumption or for producing products such as dairy products or wool. Such animals are allowed to spend part of their life cycle in large pasture areas.

Most agricultural land uses are locationally confined to soils possessing high plant productive capacity. Generally, the most productive soils are located on the flat to gently rolling clay to loam textured soils. Such areas tend to be concentrated along the south slopes of the Moraine and within portions of King and Caledon.

Sand based soils, especially on steep or irregular sloped lands are the most poorly suited for agriculture due to the problem of low fertility, droughtiness and steep slopes.

Intensive animal farming is less dependent on the soil productivity since most of the activity occurs within buildings and imports feed material from outside sources.

#### (b) **Environmental, Social and Economic Impacts**

Agriculture remains a major economic force within Ontario. On the Oak Ridges Moraine over 50% of the land surface remains in productive agricultural use. Agricultural land represents a valuable part of our cultural heritage. It contributes to the local economic base and is a source of employment and food. Agricultural land use is an integral part of the rural character of the Study Area and contributes to the aesthetically pleasing landscape of the Moraine.

However, concerns have been raised that improper agricultural practices can degrade the quality of air, water and soil, and that clearing for agricultural use may destroy or degrade significant natural features.

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has pointed out however that there is little, if any, additional clearing of vegetation for agriculture in the Greater Toronto Area portion of the Moraine. In fact, in some areas there has been a net increase in forest cover.

Many of the impacts associated with agricultural activities may be mitigated through the use of best management practices. Recent publications by Agriculture Canada entitled "Best Management Practices Manual" (no date) comprise of six booklets which deal with soil and water problems, livestock and poultry waste management, field crop production, horticultural crops, farm forestry and habitat

management, and water management. Many of the methods suggested in these booklets are summarized in Table A3 in Appendix A. Methods such as the proper timing and application of manure and fertilizers, the fencing of streams to prevent cattle access, the retiring of fragile or steeply sloping lands and the use of no tillage practice will be effective in reducing negative environmental effects associated with agricultural land uses.

**(c) Additional Planning Issue and Consideration**

- Given the substantial socio-economic importance of agriculture in the Study Area and the locational attributes that require concentration of the activity on the highly productive soils of the Moraine, it should be recognized that agricultural activities will continue to exist on large portions of the Study Area. In fact, current and emerging provincial policy would suggest that agricultural land uses should enjoy primacy in areas where high quality agricultural soil and/or existing farming activity occurs.
- Notwithstanding the above, the agricultural industry must be encouraged to strive towards agricultural management practices that respect ecological functions and sensitivities.
- Current planning legislation in Ontario has virtually no ability to monitor or regulate the agricultural industry in even the most basic or rudimentary form. Our ability to encourage proper environmental management is limited largely to educational, research and incentive programs administered through the Ontario Ministry of Agriculture, Food and Rural Affairs.

**(d) Suggested Planning Approaches**

- The Oak Ridges Moraine Technical Working Committee should consult with OMAFRA to ensure that provincial policy is appropriately addressed in the Oak Ridges Moraine Area Strategy to recognize the importance of the agricultural industry in the Moraine.
- The Strategy should encourage the use of agricultural best management practices to protect ecological form, functions and natural features.
- The Province of Ontario primarily through OMAFRA continues to pursue improved methods to monitor and regulate the agricultural industry's impact on the environment.

## **6.2 Forestry**

### **(a) Description**

Forestry is defined as the management of the forest resource and includes the maintenance, renewal and removal of trees within woodland areas for the production of wood and related wood products including maple syrup, and nuts, but also providing habitat for desirable plants and animals. The possible removal of severely damaged, diseased and insect infested trees to prevent contamination or infestation of healthy trees is also included.

"Good forestry practice" is defined as the proper implementation and use of harvest, renewal and maintenance activities which are known to be appropriate for the specific forest and environmental conditions. It minimizes detriments to all forest values such as: significant ecosystems, important fish and wildlife habitat, soil and water quality and quantity, forest productivity and health, and aesthetics and recreational opportunities of the landscape.

In the Oak Ridges Moraine Area, the shelterwood system and the selection system are the preferred methods of tree harvest. The clearcut system of tree harvest should be avoided (if not prohibited outright). A thorough description of the preferred silvicultural practices are to be found in "A Silvicultural Guide for the Tolerant Hardwoods Working Group in Ontario" prepared by the Ontario Ministry of Natural Resources.

### **(b) Environmental, Social and Economic Impacts**

Forestry use is not generally considered a land use but rather is dealt with as an activity within other uses such as "rural use" or "natural park".

Forestry in the Moraine generally involves cutting that does not physically eliminate woodlands but rather selectively removes trees and manages the woodland to maximize productivity.

Many people view forestry as a benign use. Forestry, however, can profoundly change the environmental condition of a site if improper practices are used.

The major socio-economic and environmental effects are outlined in Table A4 in Appendix A.

The benefits of maintaining healthy functioning woodlands are well documented and will not be repeated here.

There are however some potential negative effects that must be considered when undertaking certain forestry activities, particularly:

- the danger of fragmenting interior forest habitat through the creation of openings in the forest canopy. This may reduce available habitat for interior sensitive plants and animals,
- the danger of reducing or eliminating certain plant species through their selective removal as part of forestry practice (e.g. removal of ironwood because of its limited timber value),
- the danger of reducing or eliminating certain animal species through the selective removal of den or cavity habitat trees as part of forestry practice, and
- the danger of increased erosion and sedimentation if excessive tree harvesting is permitted in ecologically sensitive sites (i.e. next to streams, wetlands, and steep slopes).

**(c) Additional Planning Issues and Considerations**

- Forestry is generally considered a positive activity that should be permitted to continue within the Oak Ridges Moraine Area. Inappropriate tree harvest activity that would adversely affect woodland health and diversity should not be allowed.
- All forestry activity should be conducted in a manner to protect and if possible, enhance ecological form and function of the Moraine.

**(d) Suggested Planning Approaches**

- The Oak Ridges Moraine Area Strategy should provide policies that:
  - define the meaning of good forestry practice,
  - limit forestry to activities that protect or enhance the ecological form and function of the Moraine.
- The implementation agency for the Oak Ridges Moraine Area Strategy should meet with the MNR and the forest industry to explore the most appropriate ways of ensuring that the intent of the Oak Ridges Moraine Area Strategy is met.



- Public agencies that own and/or manage woodland areas should be required to review their forestry management plans.

### **6.3 Water Taking**

#### **(a) Description**

Water taking is an activity associated with a wide range of land uses.

Water withdrawn from either surface or subsurface sources on the Moraine are employed for a wide variety of needs including:

- human or animal consumption,
- watering crops or landscaped areas,
- disposal of human or animal waste, and
- processing associated with commercial or industrial uses.

In a regulatory sense, water is dealt with in two ways:

#### **• Small Scale Withdrawals**

Relatively small amounts of water withdrawal (i.e. less than 50,000 litres/day) that occurs through domestic wells are virtually unregulated. Government or regulatory intervention only occurs where adjacent landowners are adversely affected and demand redress through common law rights or the Ontario Water Resources Act (Section 34), administered by the Ministry of Environment and Energy (MOEE).

#### **• Large Scale Withdrawals**

Water withdrawal in excess of 50,000 litres per day requires a permit from the Ministry of Environment and Energy (MOEE) under Section 34 of the Ontario Water Resources Act.

**(b) Environmental, Social and Economic Impacts**

Water taking is basically an unmonitored activity in the Oak Ridges Moraine Area. Although MOEE and some other agencies like the Conservation Authority collect data on quality and quantity of surface and subsurface sources, there is currently no agencies that have cumulatively assessed the impact of water taking on:

- the long term availability of water supply, and
- the effect on baseflow and aquatic habitats on headwater area of streams.

**(c) Additional Planning Issues and Considerations**

- Due to the importance of water resources to existing water users on the Moraine and to the maintenance of baseflow in headwater streams, future water taking should be carefully regulated and monitored.
- Under the Ontario Water Resources Act, permits to withdraw water in excess of 50,000 litres per day should be required to demonstrate that their withdrawal will not adversely affect availability of water to other users and will not diminish baseflow to adjacent headwater streams.
- The only way at present, to regulate small scale withdrawals of water is to ensure that related land use changes under the Planning Act are appropriately regulated and monitored for their effects on water resources.

**(d) Suggested Planning Approaches**

The Technical Working Committee should include policies in the ORM Area Strategy that:

- requires MOEE review of applications for water taking under the Ontario Water Resources Act to include:
  - an evaluation of the impact of such taking on adjacent water users, and
  - an evaluation of the impact on the baseflow of adjacent headwater streams.

- requires applications for changes in land use under the Planning Act to identify:
  - predicted water usage, and
  - potential impact of such taking on adjacent users and the baseflow of adjacent headwater streams.

The Province should be encouraged to establish a water resources monitoring program that is capable of predicting and assessing the impact of additional water taking within the Moraine.

## 7.0 NON-RENEWABLE RESOURCE EXTRACTION

Non-renewable resource extraction is defined as a land use where subsurface material such as topsoil, peat and aggregates is removed, sorted and/or processed for use in construction or horticultural purposes. Such materials once removed, are not renewable or replaceable.

Two well known major types of non-renewable resource extractions occur in the Oak Ridges Moraine Area:

- aggregate resource extraction
- peat extraction.

### 7.1 Aggregate Extraction

#### (a) Description

Aggregate extraction entails the establishment of pits or quarries and waysides for the removal, sorting and processing of aggregate material such as sand, gravel and crushed stone to provide a wide variety of material needed for Ontario's construction industry.

Aggregate extraction is an essential industry since it supplies a construction product for which there is no substitute. The use is locationally restricted to areas possessing the necessary geological deposits. Over 75 % of the aggregate needs of the Greater Toronto Area are supplied by resources within either the Oak Ridges Moraine or the Niagara Escarpment. To date, no alternative has been identified that will significantly reduce the demand for aggregate from the Oak Ridges Moraine.

Extraction requires the substantial alteration of existing landforms. Vegetation is removed. Topsoil, subsoil and overburden are stripped, stockpiled and respread over the site once the aggregate material has been removed.

Accessory uses such as truck weigh-in stations, sorting, washing and screening facilities, and an office are usually associated with aggregate extraction. Ancillary uses such as asphalt plants, cement mixing plants and aggregate transfer stations may also occur.

The chief difference between aggregate extraction and most other land uses is that it is an interim land use. At some future point, aggregate extraction will cease and the site will be rehabilitated to an alternate land use.

**(b) Environmental, Social, and Economic Impacts**

The potential positive and negative impacts of aggregate extraction are summarized in Table A5 in Appendix A.

Aggregate extraction provides many positive economic benefits to the Province in terms of jobs, revenue and the provision of essential construction materials.

However, it has a potential to conflict with adjacent land uses in the form of truck traffic, dust and noise associated with the daily operations of a sand and gravel pit.

Additionally, its dramatic modification of the landform raises concerns about its potential to destroy natural features, modify the quality or quantity of water and air resources and degrade the visual character of an area.

An almost never considered implication is the land use potential to either negatively or positively influence the long term environment by the type of rehabilitation and end use that occurs after rehabilitation is completed.

**(c) Additional Planning Issues and Considerations**

- Due to its potential to dramatically impact and alter the environment, the aggregate extraction industry must be carefully regulated to ensure that any potential adverse impacts are identified, mitigated and monitored. Fortunately, extraction is closely planned and regulated according to the Planning Act, the Aggregate Resources Act, and the Environmental Protection Act. Some would argue that aggregate extraction is the most regulated industry in Ontario. Under the Aggregate Resources Act, every operation must be licensed and rehabilitated to a suitable after use.
- Due to its locational limitations and the apparent lack of suitable alternatives at this time, it is likely that aggregate extraction will continue as a major land use in the Moraine into the foreseeable future. In fact, existing government policy in the form of the "Mineral Aggregate Resource Policy Statement" requires that opportunities for future aggregate extraction be available subject to appropriate environmental controls.



- An untapped opportunity to actually enhance environmental quality in the Moraine may exist through the long term rehabilitation of depleted pits. Through rehabilitation, the opportunity may exist to:
  - replace and increase natural vegetative cover,
  - reconnect or re-establish natural corridors, and
  - create new aquatic and wetland habitat where extraction has gone below the water table.

**(d) Suggested Planning Approaches**

- Any application to create a new sand or gravel pit or expand an existing facility should be viewed as a major change in land use requiring the comprehensive evaluation of potential environmental, social and economic effects.
- As a minimum, all new sand and gravel pits or expansion to existing ones should require an amendment to the local municipality's official plan where it can be demonstrated that:
  - no significant natural areas will be degraded or destroyed,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality or quantity of air, water and soil will occur, and
  - no degradation to the visual quality of significant landform features will occur.
- The establishment of truly effective planning, design and regulatory controls for aggregate extraction operations requires a coordinated approach between municipalities, and provincial ministries through controls available and the Planning Act, the Municipal Act, the Aggregate Resources Act, and the Environmental Protection Act.
- The Oak Ridges Moraine Area Strategy should address the opportunity to use pit rehabilitation as a vehicle to enhance the ecological integrity of the Moraine. This may include greater use of native plants in rehabilitation, progressive rehabilitation, restoring or re-establishing linkages between natural areas and

opportunities for improved recreation such as trails. The Oak Ridges Moraine Technical Working Committee should explore potential future opportunities in this regard with both the Aggregate Producers' Association of Ontario (APAO) and the Ministry of Natural Resources (MNR).

## **7.2 Peat Extraction**

### **(a) Description**

Peat extraction entails the establishment of a pit for the removal, sorting and/or processing of organic soil materials (i.e. peat or muck) for use or sale primarily in the horticultural or landscaping business.

The organic material can be used as a soil amendment or topsoil replacement in areas where the land surface has been degraded or modified. Peat extraction is locationally restricted to wetland areas where the presence of water has inhibited the oxidation of accumulated organic material. In the Study Area, such locations are almost always synonymous with sites that have been classified as significant wetland areas.

Extraction of this material requires the substantial alteration of existing landforms. Vegetation is removed and the water table is nearly always entered. In most cases, the excavation created by extraction becomes a water filled depression. As opposed to aggregate extraction, it is virtually impossible to return a peat extraction site to an after use that even approximates its former ecological state.

### **(b) Environmental, Social, and Economic Impacts**

Few in-depth studies of the peat extraction industry in southern Ontario have been carried out so it is difficult to assess the positive socio-economic benefits of the industry in terms of jobs, revenues, or importance of the activity to Ontario's economy.

We do know, however, that in the Study Area the activity will have a significant environmental impact since in nearly all cases the extraction will have to occur in a significant natural wetland area. Peat extraction in any location could significantly disrupt or degrade the biotic and water regimes.

**(c) Additional Planning Issues and Considerations**

- Due to its potential to dramatically alter the biotic and water regimes, peat extraction should (at the very least) be carefully regulated to ensure that any potential adverse effects are identified, mitigated and monitored.
- Some would argue that nothing less than a total prohibition of peat extraction is required within the Study Area.
- Amazingly, there appears to be little or no ability to prohibit or regulate peat extraction.
- Organic materials are exempted from the controls provided under both the Aggregate Resources Act and the Topsoil Preservation Act.
- Municipalities may have the right to prohibit or regulate the activity through zoning under the Planning Act or a regulatory by-law under the Municipal Act.
- The Township of Uxbridge has recently received passage of specific legislation to permit them to control peat extraction in their jurisdiction.

**(d) Suggested Planning Approaches**

- The Oak Ridges Moraine Technical Working Committee should recommend that the Province, as the highest possible priority, seek changes to existing legislation to provide for the effective control and regulation of the peat extraction industry.
- To the extent possible, municipalities should use existing controls available to them under the Planning Act and the Municipal Act to control and regulate peat extraction.

### **7.3 Topsoil Removal**

**(a) Description**

Topsoil removal entails the removal of the organically rich upper layers of the land surface for use or sale in horticulture or landscaping on off-site locations.

This enriched material can be used to enhance or replace topsoil in areas where land surface has been degraded or modified.

Extraction of this material obviously entails the removal of existing vegetation cover and may alter existing landform especially where substantial amounts of subsoil are included in the topsoil removed. In many cases topsoil removal will severely limit the productive capability of the soils on-site especially in the case of sand or gravel textured soils.

**(b) Environmental, Social and Economic Impacts**

Few in-depth studies of the effects of the topsoil removal have been carried out so it is difficult to assess the positive socio-economic benefits of the industry in terms of jobs, revenues or importance of the activity to Ontario's economy.

We do know however, that the activity will have a debilitating effect on the productive capability of the soils on-site. Topsoil removal removes the A horizon of the soil profile which contains most of the nutrients and organic materials necessary for plant growth. Topsoil is the product of thousands of years of soil forming processes and its replacement or rehabilitation is a lengthy and expensive proposition.

The insidious reality of this activity is that it is degrading the biological productive capability of one site to restore it on another site. In all likelihood the degraded condition of the other site was the result of poor soil management practices.

**(c) Additional Planning Issues and Considerations**

- Due to its potential to dramatically reduce the biological productive capability of a site, topsoil removal as an activity should be severely curtailed and at the very least be carefully regulated to ensure potential adverse effects are identified, mitigated, and monitored. This is especially applicable to sand and gravel based soils which are inherently thin and infertile.
- Topsoil removal from a site should only be permitted where the topsoil needs on-site can still be met. There may be limited circumstances where surplus topsoil material is produced as a by-product of development.

- Currently, the Topsoil Preservation Act provides the municipality with the ability to pass by-laws to regulate the removal of topsoil from a site. Municipalities may also be able to indirectly limit or regulate the activity as part of the subdivision planning process under the Planning Act.
- Amendments proposed under the Municipal Act under Bill 163 will also enhance the municipality's ability to prevent the inappropriate grading or alteration activities.

**(d) Suggested Planning Approaches**

- Topsoil removal should be generally discouraged as an activity in the Oak Ridges Moraine Area.
- In limited circumstances, topsoil removal may be considered where surplus topsoil results as a by-product of development.
- Municipalities should be encouraged to institute appropriate topsoil removal controls to the extent possible under existing legislation.





## 8.0 LINEAR UTILITIES

### (a) Description

Linear utilities comprise of linear facilities such as hydro transmission lines, hydrocarbon pipelines and roads which bisect the landscape.

Although these facilities tend to be relatively narrow in width, they can extend for many kilometres across the landscape.

Their chief function is to convey products such as gas, oil or electricity from its source to points of consumption. Highways convey vehicles.

Occurring at intervals along these linear facilities are nodal facilities such as gas stations in the case of roads, transformer stations in the case of hydro and storage tank facilities in the case of hydrocarbon pipelines.

The landform modifications associated with such uses include:

- clearing of vegetation cover within the established right-of-way,
- grading of land,
- installation of structures,
- installation of culverts or bridges where stream crossing occurs in the case of pipelines and roads,
- excavation and burial of structures in the case of the pipeline, and
- the suppression of some forms of natural vegetation (e.g. tall trees, shrubs) along the entire right-of-ways via mechanical removal and/or the application of herbicides.

### (b) Environmental, Social, and Economic Impacts

The potential positive and negative impacts of linear utilities are summarized in Table A6 in Appendix A.

Linear utilities are essential uses that provide for the efficient movement of people and goods across Ontario.

Linear facilities can have the following major impacts on the natural environment:

- direct destruction of natural vegetation and related natural features,
- fragmentation of large contiguous blocks of natural habitat,
- disruption of native animal migration or movement patterns,
- degradation of water quality especially at vulnerable stream and wetland crossing points, and
- disruption of surface water flow across vulnerable stream and wetland crossing points.

Fortunately, many of the negative impacts associated with this land use can be avoided by careful planning and employing proper mitigative measures.

Sensitive natural features should be avoided wherever possible and consideration should be given to minimizing the fragmentation of natural habitat. Greater emphasis also needs to be given to recolonizing right-of-ways with native plant species and mechanical removal of unwanted plants should be preferred over the application of herbicides.

**(c) Additional Planning Issues and Considerations**

- Due to their potential to impact the environment, linear facilities must be carefully regulated to ensure that any potential impacts are identified, mitigated and monitored. Fortunately, extensions or upgrading of linear facilities are closely planned and regulated under the Environmental Assessment Act in the case of roads and hydro lines and under the Federal Environmental Assessment and Review Process in the case of hydrocarbon pipelines.
- The Oak Ridges Moraine Area Strategy should however clearly identify a strategy outlining how extensions or upgrades or linear facilities should be planned and regulated within or adjacent to significant or sensitive natural features.
- A largely untapped opportunity to enhance environmental quality in the Moraine may exist through the reintroduction of native plant species onto existing linear facility rights-of-way.

**(d) Suggested Planning Approaches**

- Any proposal to extend or upgrade a linear facility should be viewed as a major change in land use requiring the evaluation of potential environmental social and economic effects.
- As a minimum, all new extensions or upgrades within the Moraine should have regard to the Oak Ridges Moraine Area Strategy to ensure that the principles and policies of that document are adhered to and to demonstrate that:
  - no significant natural area will be degraded or destroyed,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality or quantity of air, water and soil will occur, and
  - no degradation to the visual quality of significant landform features will occur.
- In regard to the above, the Province should, as part of the implementation of the Oak Ridges Moraine Area Strategy, address the need to amend the relevant Environmental Assessment procedures for the review of proposed new or upgraded linear facilities to require compliance to the policies of the ORM Area Strategy.
- The Province and/or the ORM Technical Working Committee should explore with Ontario Hydro, appropriate road authorities and pipeline companies the greater use of native plant species in existing and new utility right-of-ways and reductions in the use of herbicides.





## 9.0 URBAN LAND USES

Urban land uses are defined as areas dominated by buildings and structures constructed for a variety of industrial, institutional, commercial and residential uses. Other uses may exist in such areas but are clearly subordinate to these three main uses.

At the risk of generalization, urban land uses tend to share the following characteristics:

- a large percentage of land is covered by impermeable surfaces such as buildings, concrete, and asphalt,
- plant and animal species tend to be few in number and dominated by exotic, feral or horticultural types. Native species tend to be limited to highly gregarious or adaptable habitat generalists, and
- large amounts of pollutants, biocides, and fertilizers are introduced into the environment through activities that occur within urban areas.

Many obvious economic and social benefits are provided in urban areas including jobs, government revenues, housing, etc. and no one can question the need for additional urban areas to accommodate the growing population in the Greater Toronto Area.

The more urgent questions for urban growth are:

- where should such growth occur?
- in what form? and
- how should growth proceed to ensure negative social, economic and environmental impacts are avoided or at the very least minimized?

The balance of this section of the report will focus on these questions in an effort to provide some direction on the preferred form of urban growth within the Oak Ridges Moraine Area.

## 9.1 Types of Urban Land Uses

Three types of urban land use can be defined in the Moraine that reflect variations in urban uses according to density, property size, and types of community services. These are:

- Urban Uses in Rural Areas
- Urban Uses in Hamlets and Villages
- Urban Uses in Towns and Cities

The difference between these three urban uses is outlined in Figure 1.

## 9.2 Urban Uses in Rural Areas

### (a) Description

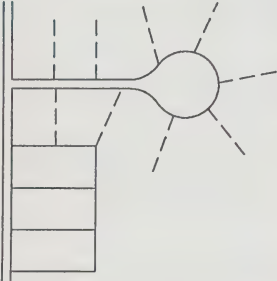
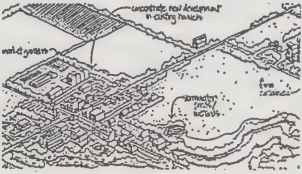
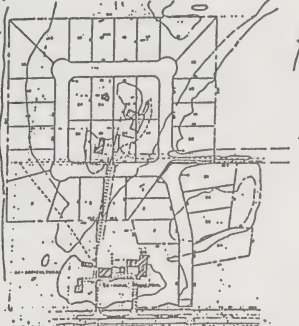
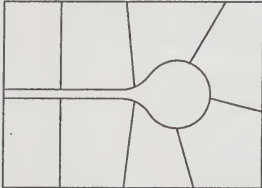
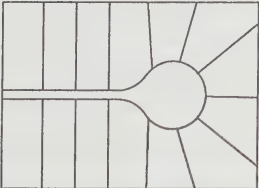

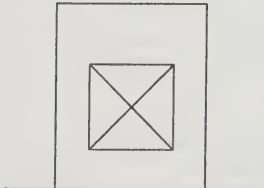


These urban uses include residential, industrial, institutional and commercial uses which are located outside of defined settlement areas. These uses are generally not serviced by municipal water or sewer relying instead on individual wells and septic tanks. Additionally, such areas are usually located some distance away from community services such as police, fire protection, community centres, schools, etc. As a result, access to community facilities usually requires extensive travel by car. Urban uses in Rural Areas also have larger single residential property sizes (i.e. greater than one hectare) than other urban use areas.

### (b) Environmental, Social, and Economic Impacts

The potential positive and negative impacts of urban uses in rural areas are summarized in Table B1 in Appendix B.

Urban uses in rural areas provide locational choices for those residents of the Greater Toronto Area who prefer to locate in areas surrounded by predominantly non-urban land uses. (NOTE: This can be defined as a lifestyle choice.) Decision for locating industrial and commercial uses in rural areas is often more related to lower land prices and servicing costs.

**FIGURE 1**  
**URBAN LAND USE TYPES**

URBAN USES IN RURAL AREAS	URBAN USES IN HAMLETS AND VILLAGES	URBAN USES IN TOWNS AND CITIES
<p>Lots established along rural highways and major roads not in association with community nodes or urban infrastructure.</p> 	<p>Lots established around community nodes with some urban infrastructure.</p> 	<p>Associated with full range of urban infrastructure.</p> 
<p>Lowest density (residential lots are generally greater than 1 hectare).</p> 	<p>Moderate density (residential lots are generally 0.2 to 1.0 hectare).</p> 	<p>Highest density (residential lots are generally less than 0.2 hectare).</p> 
<p>Residential units are almost exclusively single family units.</p> 	<p>Residential units are predominately single family units.</p> 	<p>Residential units are mixture of housing types.</p> 

Because of the large property sizes involved, these types of urban uses tend to have greater ability to minimize direct destruction of forest cover, and modification of landform since a smaller percentage of the land surface is needed to accommodate buildings and structures than other denser forms of urban development and there is greater on-site flexibility in building and structure location.

Although the larger property size provides greater siting flexibility, it also requires larger land area for uses that could just as easily be provided on considerably less land in other types of urban uses. Where urban uses in rural areas are displacing land uses such as agriculture or future aggregate extraction, such a development could therefore be viewed as wasteful.

The biggest concern with this form of development is the costs it may place on the government in general since many community services must be provided at a greater per capita basis than urban uses in settlement areas. This is because greater distance from community facilities require greater transportation costs for things such as police and fire protection, ambulance service, school busing and garbage collection. In providing such housing choices, it is important to ensure that the fiscal return to the municipality (i.e. assessment tax revenues) adequately covers these demands.

### **(c) Additional Planning Issues and Implications**

The environmental, social and economic impacts of urban uses in rural areas have traditionally been evaluated on a site by site basis in response to a specific severance, subdivision or rezoning applications. Special emphasis should be placed on the cumulative impacts on air, water and soil quality and the costs to the taxpayer of providing community services.

The problem with this approach is that urban uses in rural areas tend to be individually small and impacts at this scale are immeasurable or seemingly insignificant. However, when considered on a cumulative basis such isolated, small impacts could add up to major and often unacceptable impacts.

In the future, municipal planning must strive for a more effective framework on which to evaluate urban uses in rural areas.

**(d) Suggested Planning Approaches**

- The Oak Ridges Moraine Area Strategy must encourage municipalities to develop comprehensive municipal wide strategies for establishing urban uses in rural portions of their municipalities to ensure applications for new urban uses in these areas will be evaluated on a basis that assesses cumulative as well as individual effects on the environmental, social and economic well being of the municipality.
- Urban uses should be prohibited in rural areas on or in:
  - prime agricultural land
  - significant natural areas
  - potential aggregate extraction area

### **9.3 Urban Uses in Hamlets and Villages**

**(a) Description**

These urban uses include residential, industrial and commercial uses located within settlement areas which are unserviced or only partially serviced with municipal water supplies and/or sewage treatment facilities. Such areas may have some limited community facilities but do not usually enjoy a full range of such services. Usually sufficient commercial facilities exist to fulfil immediate or routine community needs. However, full scale shopping as well as other services such as car repair or libraries are often sought in other locales. Residential lot sizes in such areas tend to be intermediate in size between the other two types of urban use (i.e. 0.2 to 1.0 hectare).

**(b) Environmental, Social and Economic Impacts**

The potential positive and negative impacts of urban uses in hamlets and villages are summarized in Table B2 in Appendix B.

Urban uses in unserviced or partially serviced settlement areas provide housing choices to residents of the GTA who prefer to locate in areas viewed as hamlet or village settings away from the hectic lifestyle of the town or city. Decisions for locating industrial and commercial uses in rural areas is often more related to lower land prices and servicing costs.

Because lot sizes tend on average to be larger than those located in towns and cities there is a slightly better ability to minimize destruction of natural features through adjustment to building and structure location.

Two main concerns typify this type of urban development. First, because lots are smaller in size than comparable types of development in rural areas and because more lots are crowded close together, the risk of contaminated wells and malfunctioning septic systems can be high.

Second, it is assumed that as such settlement areas continue to grow they will reach a critical size where residents begin to demand a greater range of community services that will have to be provided and financed by the municipality. Certainly, it is safe to assume that at some point in its growth, the settlement area will convert from individual water and sewer services to a communal system.

#### **(c) Additional Planning Issues and Implications**

The environmental, social and economic impacts of urban land uses in hamlets and villages are usually evaluated either as part of an overall community plan or as a specific application for the extension or expansion of the existing community. Because such evaluations are usually viewed in the context of how it will impact the existing settlement area, they tend to take into account cumulative impacts in a better manner than urban uses in rural areas.

However, government agencies have in many instances not done a good job of managing for the transition between a community serviced by individual water and sewage treatment facilities to ones serviced on a communal system. Should, for example, a population cap be established for an unserved community until communal facilities can be provided? From the perspective of water quality and quantity in the Moraine, the answer to this question is crucial.

#### **(d) Suggested Planning Approaches**

The Oak Ridges Moraine Area Strategy must require municipalities to provide policies that address the transition of settlement areas from individual water and sewage treatment facilities to full communal services. This should include the provision of an upper limit for individual services.



## **9.4 Urban Uses in Towns and Cities**

### **(a) Description**

These urban uses include residential, industrial, institutional, and commercial uses located in settlement areas on full municipal water and sewage treatment facilities. Such communities tend to enjoy a large range of community facilities such as shopping facilities, fire stations, libraries, community centres, etc. Residential lot sizes in such areas are highly variable but average well below 0.20 hectare.

### **(b) Environmental, Social, and Economic Impacts**

The potential positive and negative impacts of urban uses in towns and cities are summarized in Table B3 in Appendix B.

Because these types of urban areas provide the greatest variety of housing choices, and in most cases the most affordable housing, the majority of residents choose to live in such areas. Although cost of land and servicing are still prime considerations, access to customers and other support facilities are the prime reason for industrial and commercial land uses location in this area. Industrial and commercial use that place high demand on water and sewer services are also usually limited to this urban form.

Because of the higher intensity of development than for other urban uses, air, water, soil and landform are most severely altered in serviced settlement areas. Generally, the only way to protect significant natural features is to place them in a protective natural or open space zone.

Land values tend to be much higher on a per hectare basis in serviced settlement areas than other urban types. Therefore there is likely to be less willingness to set areas aside as natural unaltered landforms than in other urban land use types.

### **(c) Additional Planning Issues and Implications**

Environmental, social and economic impacts of urban land uses in serviced settlement areas are usually evaluated as part of a plan for a major expansion of the community.

Since the area that will be allocated to urban uses will be extensively altered and effectively eliminated as a natural landform, it is extremely important that all significant natural features and essential ecological functions are identified upfront in the planning process and provided appropriate protection as part of the municipality's open space or greenspace system.

It is worth noting that all current provincial policy initiatives in the GTA (see Section 4) advocate the concentration and intensification of urban uses in serviced settlement areas.

**(d) Suggested Planning Approaches**

The Oak Ridges Moraine Area Strategy must clearly identify and provide for the protection of significant natural features and functions within the expansion areas of all urban uses.

## 9.5 Comparative Evaluation of Urban Land Use Areas

Tables B1, B2, and B3 in Appendix B provide a detailed evaluation of the potential effects of the three urban land use area types on the economic, social, and environmental character of the Study Area. Although these evaluations are qualitative in nature, they do provide a basis for predicting potential effects and for comparing relative differences of the three urban land use area types.

These comparative charts were based on the experiences of the authors as well as a review of relevant literature prepared in Ontario. The Report of the Provincial-Municipal Countryside Working Group titled "A Vision For The Countryside" was especially useful in this regard. Excerpts from this report are attached as Appendix D.

Table 1 shows a summary of the types of effects of all urban land use types.

<b>TABLE 1</b> <b>Summary of Effects of Urban Land Use Types (General)</b>	
<b>CRITERIA</b>	<b>EFFECTS</b>
<b>ECONOMICS</b>	
Disruption and Displacement of Agricultural Activities	May disrupt or displace agricultural land and its associated uses.
Change to Level of Municipal Service	Generate increased municipal revenues through increased municipal assessment rates relative to most land uses displaced (such as agriculture)
	Generate costs for services and transportation
Change to Soil Resources on Highly Permeable Soils	Soil health and productivity can be improved where urban use displaces a highly impacting use
	Introduction of pesticides and fertilizers may degrade soil health
	Soil profile and structure can be degraded by compaction and landform modification
	Covering of permeable soils may reduce recharge capacity and degrade water resources
Displacement and Disruption of Significant Natural Areas, Woodlands and Impacts on Watercourses and Lakes	Natural areas, watercourses, lakes and woodlands may be displaced by urban uses
	Natural areas, watercourses and lakes and woodlands may be destroyed or degraded through changes to air, water and soil quality
Business Opportunities	Generate opportunities/jobs in the construction industry including spin-off benefits to support industries
	Generate long term opportunities related to maintenance and other support sectors
	May cause agricultural or resource extraction business disruption

**TABLE 1 (Continued)**  
**Summary of Effects of Urban Land Use Types (General)**

<b>CRITERIA</b>	<b>EFFECTS</b>
<b>SOCIAL</b>	
Changes in Recreation	May provide new recreation opportunities
	May displace or disrupt recreation opportunities
Satisfaction of Housing Demand	Satisfy a demand for a particular housing type/location
Change to Community Character, Cohesion, Structure and Stability	New residential land uses may change the character of existing areas
Change to Visual Character of Landform	Visual character can be improved through innovative site design and landscaping
	Introduction of incompatible building design may impair visual quality
<b>NATURAL ENVIRONMENT</b>	
Change to Air Quality	Conditions may be improved if highly polluting land use is displaced
	Impairment to air quality may occur due to air emissions, land modification and vegetation removal, increased dependence on automobile for commuting
Change in Potential for Flooding	Introduction of impermeable surfaces, regrading and compacting of soil can increase potential for flooding downstream
Change in Potential for Erosion/Sedimentation	Erosion and sedimentation can be reduced if urban use displaces a highly impacting use
	Introduction of impermeable surfaces, regrading and compacting of soil can result in increased erosion and sedimentation
Change to Surface Water Quality	Surface water quality can be improved if urban use displaces a highly impacting use
	Pesticides, fertilizer, car exhaust and road salts may degrade water quality
Change to Groundwater Quantity	Introduction of impermeable surfaces, regrading and compacting of soil can result in reduced recharge capacity and reduced storage capacity in ground water

Table 2 provides a generalized comparison of the three urban land use types drawn from the information in Appendix B.

<b>TABLE 2</b> <b>Comparison of Relative Advantages and Disadvantages</b> <b>of the Three Urban Land Use Types Based on</b> <b>Their Respective Potential Environmental, Social and Economic Effects</b>			
	Urban Uses in Rural Areas	Urban Uses in Hamlets and Villages	Urban Uses in Towns and Cities
<b>ECONOMICS/SOCIAL</b>			
Disruption and Displacement of Agricultural Activity	Greatest Disruption and Displacement Potential - use more land per unit development - create more fragmented land use pattern	Potential Impacts Intermediate	Least Disruption and Displacement Potential - use least land per unit development - compact form, minimizes fragmentation
Demands on Municipal Services	- Generally greater per unit cost to supply municipal services (e.g. policing, busing, snow removal) - Some municipal services not required (i.e. water and sewer) - Residents in these areas have poorest access to community facilities (e.g. schools, libraries)	- Intermediate per unit cost for municipal services - As these areas grow, demand for municipal water and sewer services will occur - Intermediate access to community services	- Generally least per unit cost to supply municipal services - Municipal water and sewer services always demanded - Residents in these areas have best access to community facilities
Energy Demand	- Greatest reliance on automobile - Per unit, consumption of energy highest	- Intermediate - Per unit, consumption of energy intermediate	- Least reliance on automobile - Compact form renders mass transit viable option - Per unit, consumption of energy lowest

TABLE 2 (Continued...2)

**Comparison of Relative Advantages and Disadvantages  
of the Three Urban Land Use Types Based on  
Their Respective Potential Environmental, Social and Economic Effects**

	Urban Uses in Rural Areas	Urban Uses in Hamlets and Villages	Urban Uses in Towns and Cities
<b>ECONOMICS/SOCIAL (Continued...)</b>			
Business Opportunities	<ul style="list-style-type: none"> <li>- Generally business will have higher dependency on automobile</li> <li>- Probably lowest per unit land and servicing costs</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate</li> <li>- Intermediate</li> </ul>	<ul style="list-style-type: none"> <li>- Business potential most efficient because potentially greater proximity to:               <ul style="list-style-type: none"> <li>- support industries</li> <li>- suppliers</li> <li>- customers</li> </ul> </li> <li>- Probably highest per unit land and servicing costs</li> </ul>
Physical Environment	<ul style="list-style-type: none"> <li>- Appeals to those people wishing to live in a rural setting</li> </ul>	<ul style="list-style-type: none"> <li>- Appeals to those people wishing to live in a small village atmosphere</li> </ul>	<ul style="list-style-type: none"> <li>- Appeals to those people who:               <ul style="list-style-type: none"> <li>- wish to live in an urbanized setting close to urban amenities (e.g. shopping, transit)</li> </ul> </li> </ul>
Satisfaction of Housing Demand	<ul style="list-style-type: none"> <li>- Provides only one housing type (e.g. single family dwelling)</li> </ul>	<ul style="list-style-type: none"> <li>- Provides limited housing types (e.g. mainly single family dwelling)</li> </ul>	<ul style="list-style-type: none"> <li>- Provides large range of housing options</li> </ul>
Change to Visual Character of Landform	<ul style="list-style-type: none"> <li>- Too large or poorly designed development could change rural character of an area</li> <li>- Sensitive designs in some cases may preserve or even enhance visual character</li> </ul>	<ul style="list-style-type: none"> <li>- Too large or poorly designed development could change village character</li> <li>- Sensitive designs in some cases may preserve or even enhance village character</li> </ul>	<ul style="list-style-type: none"> <li>- Tend to highly modify character of land so that area takes on distinct urban character</li> <li>- Sensitive environmental areas become greenspace blocks within the urban fabric</li> </ul>



TABLE 2 (Continued...3)

**Comparison of Relative Advantages and Disadvantages  
of the Three Urban Land Use Types Based on  
Their Respective Potential Environmental, Social and Economic Effects**

	Urban Uses in Rural Areas	Urban Uses in Hamlets and Villages	Urban Uses in Towns and Cities
<b>ENVIRONMENT</b>			
Effect on Air Quality	<ul style="list-style-type: none"> <li>- Greater reliance on automobile probably create greater per unit air pollution</li> <li>- However, in rural area, effects not always detectable</li> <li>- Concern more for cumulative effects rather than direct measurable effects</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate effects</li> </ul>	<ul style="list-style-type: none"> <li>- Less per unit air pollution usually created</li> <li>- Concentrated urban form can create localized air pollution problems that should be mitigated</li> </ul>
Change in Flooding and Erosion Rates	<ul style="list-style-type: none"> <li>- With proper design techniques there is generally no problems created in terms of increased flooding or erosion</li> <li>- Concern more for cumulative effects</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate effects</li> </ul>	<ul style="list-style-type: none"> <li>- High amount of land surface modification and introduction of impermeable material can significantly increase runoff and create both localized and downstream increases of both flooding and erosion</li> <li>- Comprehensive subwatershed Planning can be used to address this concern</li> </ul>
Change to Surface Water Quality	<ul style="list-style-type: none"> <li>- Some increase in general erosion and introduction of toxins will degrade water quality although not always detectable in rural environment</li> <li>- Concern more for cumulative effects</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate effects</li> </ul>	<ul style="list-style-type: none"> <li>- Concentrated urban form can create localized water quality concerns or cumulative downstream effects</li> <li>- Comprehensive Subwatershed Planning can be used to address this concern</li> </ul>

TABLE 2 (Continued...4)

**Comparison of Relative Advantages and Disadvantages  
of the Three Urban Land Use Types Based on  
Their Respective Potential Environmental, Social and Economic Effects**

	Urban Uses in Rural Areas	Urban Uses in Hamlets and Villages	Urban Uses in Towns and Cities
<b>ENVIRONMENT (Continued)</b>			
Change to Subsurface Water Quality	<ul style="list-style-type: none"> <li>- Introduction of pollutants and use of septic tank systems can degrade subsurface water quality</li> <li>- Effects tend to be localized where malfunctioning septic tank or road salt pollution occurs</li> <li>- Concern more for cumulative effects</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate effects</li> </ul>	<ul style="list-style-type: none"> <li>- Introduction of pollutants can degrade subsurface water quality</li> <li>- Usually less per unit degradation to water quality especially since municipal sewage treatment facilities eliminate need for septic tank systems</li> <li>- Concentrated urban form can create localized water quality concerns</li> <li>- Comprehensive Subwatershed Planning can be used to address this concern</li> </ul>
Change to Groundwater Quantity	<ul style="list-style-type: none"> <li>- Use of groundwater reduces subsurface supply if not done on a sustainable basis</li> <li>- Minor reduction in recharge due to introduction of impermeable material</li> <li>- Concern more for cumulative effects</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate effects</li> </ul>	<ul style="list-style-type: none"> <li>- Use of groundwater usually through municipal well</li> <li>- May significantly reduce recharge</li> <li>- Concern more for impact on overall water budgets within watersheds or aquifer systems</li> </ul>
Displacement/Disruption of Significant Natural Areas	<ul style="list-style-type: none"> <li>- Low density form has greatest potential to minimize removal of vegetation and modify land surface</li> <li>- Scattered development can badly fragment some natural habitat types</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate effects</li> </ul>	<ul style="list-style-type: none"> <li>- Dense form of development usually requires extensive vegetation removal and land modification</li> <li>- Significant natural features to be protected need to be placed into greenspace blocks and be connected</li> </ul>

TABLE 2 (Continued...5)

**Comparison of Relative Advantages and Disadvantages  
of the Three Urban Land Use Types Based on  
Their Respective Potential Environmental, Social and Economic Effects**

	<b>Urban Uses in Rural Areas</b>	<b>Urban Uses in Hamlets and Villages</b>	<b>Urban Uses in Towns and Cities</b>
<b>ENVIRONMENT (Continued)</b>			
Impacts on Natural Resources (e.g. Forests, Aggregate, Farmland)	Can fragment land and create land use conflicts that inhibit ability to manage natural resources in rural areas	Intermediate effects	Lands converted to this urban land use type is effectively unavailable to natural resource use



## **10.0 URBAN GROWTH AND SETTLEMENT IN THE OAK RIDGES MORaine - A DISCUSSION**

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### **10.1 Basic Direction**

The results of the evaluation and comparison of the three urban land use area types in the Oak Ridges Moraine suggest certain preferred direction for urban growth and settlement patterns.

Three general conclusions can be drawn.

First, it appears that concentrated development in fully serviced settlement areas generally has the potential for fewer negative social, environmental, and economic effects since these urban forms utilize less lands and have the ability to make more effective use of community services.

Second, there are some significant natural areas and resource lands where urban uses cannot occur without some non-mitigatable effect. These areas may include, for example, prime agricultural lands and significant natural areas. In such areas, urban uses should be excluded or a conscious decision is made that the benefits realized from the urban use outweigh the loss of resource or ecological function performed on the land.

Finally, there will continue to be significant demand for all forms of urban use in the Moraine. For all areas in which development is not prohibited, there should be strategies in place which strive to mitigate or minimize negative environmental, social or economical impacts. These methods may include site specific mitigation, performance standards to protect natural heritage features, or improved technology such as communal septic systems.

The balance of this section of the report will explore appropriate growth and settlement strategies. The idea in this section also draws on a discussion of possible strategies for future planning prepared by the Countryside Planning Group, OGTA (see Appendix D).

### **10.2 The Option of Outright Prohibition of Urban Uses in the Oak Ridges Moraine Area**

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Given the perceived sensitivity and significance of the Oak Ridges Moraine, some people would argue that additional urban uses in the Moraine should be prohibited.

The authors of this report suggest that this is not a tenable strategy for the following reasons:

- This would pre-empt the opportunity to take advantage of situations where community services are already available to accommodate additional growth.
- The legitimate growth aspirations of some local municipalities would be significantly curtailed especially municipalities like King, Uxbridge, Caledon, and Whitchurch-Stouffville, since large portions of their jurisdiction are within the Moraine.
- Notwithstanding the overall sensitivity of the Moraine, there is considerable physical variability within the Moraine, and there are areas that are probably very well suited to accommodate additional growth with minimal impact on ecological form or function of the Moraine or without significant loss of resource development potential for things like agricultural use, or aggregate production.
- The government of Ontario has obligations to continue to provide residents of Ontario with a variety of urban use option in terms of both location and type.

### **10.3 Encouraging Appropriate Growth and Settlement Strategies**

The Oak Ridges Moraine Area Strategy should endorse the concept that most of the additional urban growth be concentrated in or adjacent to fully serviced settlement areas. This should ensure that land resources are most efficiently used by concentrating urban uses on the minimum amount of land possible, close to existing or easily expanded community services. This approach leaves more lands available for natural ecological process and/or resource management use (e.g. farming, forestry), and reduces fragmentation than other urban land use types that are either less dense and/or more scattered.

Modest growth in unserviced hamlets and villages should be permitted to the extent that it will not overtax the ability of private water and sewer services to provide water in sufficient quality and quantities to the community. However, any hamlet or village that anticipates significant growth beyond minor infilling or rounding out, must plan for eventual conversion to communal water and sewer systems.



Urban uses in rural areas should be regarded as limited, discretionary land use opportunities. They are satisfying a very narrow range of user demand. Location of such uses must not sacrifice sensitive natural areas or lands that are valuable for resource use such as agriculture or aggregate extraction. Because of the difficulty of assessing the cumulative social, economic and environmental effects of such uses, urban uses should be permitted in rural areas only where a comprehensive municipal wide framework has been prepared that demonstrates how the cumulative negative effects have been addressed and minimized.

In order to implement the appropriate growth and settlement approaches in the Oak Ridges Moraine Area Strategy, the Technical Working Committee should:

- Require that through the official plan process, regional and local municipalities should clearly establish limits of urban and rural envelopes. This could be done by defining clear urban envelopes for all settlement areas that provide for the urban growth demands for the next 10 to 20 years. Extensive amendments to these envelopes should only be permitted where it can be demonstrated that growth needs cannot be met within the established envelopes.
- Delineate growth and settlement strategies based on appropriate growth projection.
- Establish policies that require municipalities to incorporate policies for the conversion of private water and sewer services in hamlets and villages to communal systems where continued growth is anticipated.
- Establish policies that require regional and local municipalities to develop a comprehensive municipal wide framework for the evaluation and identification of urban use opportunities in rural areas.

#### **10.4 Identifying Areas Where Urban Uses Should be Avoided**

All urban land uses have the potential to displace sensitive natural areas or to pre-empt the use of land for natural resource management.

The only effective way to reduce effects of urban land uses on these areas is to prohibit or severely restrict development in these areas. As a general rule the following areas should be avoided for urban uses:

- valuable agricultural land, except as permitted under the Foodland Guidelines
- high quality aggregate deposits, except as permitted under MARPS
- flood prone land, except as permitted under the Floodplain Policy Statement
- stream corridors
- significant natural areas as identified in the Oak Ridges Moraine Area Strategy
- natural area linkages.

Planning initiatives to protect these features are discussed in Table E1 in Appendix E.

## **10.5 Urban Planning and Design Approaches to Maintain Ecological Features, Form and Function**

As discussed above, for some areas outright prohibition of urban uses is the only way to protect significant features or values of the land. There are many other instances, however, where urban uses can be considered provided ecological form, functions and features can be protected or even enhanced if appropriate planning and design approaches are adopted.

As standard practices, all urban land use applications should be accompanied by necessary environmental investigations that address:

- how the quality and quantity of both surface and subsurface water can be maintained or improved,
- how the effects of soil erosion and sedimentation can be minimized or eliminated,
- how air quality, noise levels and local climatic conditions can be maintained or improved,
- how the health and diversity of native plant and animal species will be maintained or enhanced, and

- how to retain the basic landform character of the site especially in areas of significant natural features.

Numerous design and planning applications exist to help address such needs. These include buffers, performance standards, and mitigative techniques such as stormwater management, innovative designs and alternative technologies.

Table E2 in Appendix E suggests a number of initiatives to be taken by the Province and municipalities as well as the site design to minimize effects to the Moraine's resources.



## **11.0 REVIEW OF RECENT RESEARCH AND PLANNING GUIDELINES**

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### **11.1 Recent Research**

In the past few years there have been numerous reports prepared which are directed towards sustainable land uses in Metropolitan Toronto and its Countryside. An annotated summary of these reports, as they pertain to the Oak Ridges Moraine are provided below:

*Space for All: Options for a Greater Toronto Area Greenlands Strategy*, Kanter, 1990

The study examined options for developing a Greater Toronto Area Greenlands Strategy. The study involved the identification of areas to be included in a regional greenlands system, the examination of various mechanisms to secure and rehabilitate or enhance greenlands and the examination of alternative institutional arrangements to assist in implementing a strategy.

The Oak Ridges Moraine is discussed in terms of topography, soils, surface water, baseflow, aquifer systems and land use planning. The Moraine was identified as containing many significant natural area greenlands.

*The Environmental Effects of Urban Intensification*,  
Paehlke et al. prepared for Municipal Planning Policy Branch, Ministry  
of Municipal Affairs, 1991

The report investigates land use intensification, meaning high densities achieved through infilling, redevelopment, conversions, and more compact new development. The report identifies sixteen environmental opportunities associated with intensification, including the protection of environmentally sensitive areas and agricultural lands and the more efficient use of infrastructure.

Nine environmental risks associated with intensification were also identified such as localized air quality effects within the urban core. The report concludes that many of these impacts are mitigable and that the benefits of intensification strongly outweigh the costs. The report also identifies many possibilities regarding how intensification might be most effectively achieved.

***Urban Form: Bringing the Vision into Focus,***  
Report of the Provincial-Municipal Urban Form Working Group

The Countryside Working Group examined a number of issues pertaining to the countryside. These included the identification of greenlands and a formulation of a strategy for their protection, formulation of a strategy for establishing a trail system, and recommendations of principles which should apply to the range of uses in the countryside to ensure their character and viability.

The report also addressed several land uses encountered in the countryside, and discussed the problems and issues associated with them, objectives for use and finally, strategies. The land uses considered included agriculture, tourism and recreation, aggregates, and countryside communities.

Many of the strategies outlined in the report were useful in developing planning initiatives for the Oak Ridges Moraine. The most relevant excerpt from this document is included in Appendix D.

***Greater Toronto Area Urban Structure Concepts Study,***  
prepared for the Greater Toronto Coordinating Committee

The report describes the development of three generic urban structure concepts for the Greater Toronto Area, which illustrate different ways the area might develop over the next 20 years. These concepts include: **Spread** -- characterized by substantial population growth in the suburban regions, with relatively low density; **Central** -- substantial additional population growth/intensification in the central, built-up parts of the GTA, and **Nodal** -- intermediate concept with growth occurring primarily in and around existing communities. The three concepts are compared in terms of a number of criteria, factors and measures, using quantitative and/or qualitative measures as appropriate.

Trade-offs between the different concepts are discussed.

Other references used in the preparation of this background paper are included in the appendix.



## **11.2 Review of Relevant Legislation**

A myriad of legislation, policies and guidelines have been prepared by various agencies in recent years to direct land uses in such a manner to reduce impacts on the environment.

A review of these pieces of legislation, policies and guidelines which are applicable to the Oak Ridges Moraine are summarized in Appendix C. The mandate or purpose of each legislation, the direct applicability to the Moraine and the level of environmental protection provided are described.

## **11.3 Proposed Reform to the Existing Provincial Planning Process**

On June 6, 1991, the Minister of Municipal Affairs appointed a Commission on Planning and Development Reform (i.e. Sewell Commission) to recommend changes to the Planning Act and related policies that would restore confidence in the integrity of the planning process, protect public interests, better define roles and relationships, focus more closely on protecting the natural environment, and making the planning process more timely and efficient.

The work of the Commission culminated in June, 1993 with the final report entitled "New Planning for Ontario". This report recommended many fundamental and sweeping changes to the current planning process including:

- clear statements of public interest in areas such as natural environments and ecosystems,
- community development and efficiently managed infrastructure,
- variety in housing choices,
- protection of quality agricultural areas,
- energy and water conservation practices, and
- protection of renewable resources.

The report also suggested a better definition and separation of provincial, Regional and local municipal roles in planning and development. Fundamentally, the Province would be responsible for policy formation, provincial planning, advice, information and research. Municipalities should plan and municipal official plans should address both broad and local concerns.

The report also recommended a series of administrative changes that would make the current development approval process more timely and responsive to community needs.

In response to this initiative, the Minister of Municipal Affairs in May, 1994 put forward a package of proposed legislation, policy statements and administrative changes to reform the planning and development system in Ontario. These changes will be put into place over the next year and will fundamentally change the planning landscape in Ontario.

The Oak Ridges Moraine Technical Working Committee should be familiar with these reforms and should ensure that the final Strategy is consistent with the recent initiative.

## **12.0 OBSERVATIONS AND CONCLUSIONS**

### **General**

1. A large variety of land uses have and will continue to occur in the Oak Ridges Moraine. It is important to recognize that all land uses can have a variety of effects on the environmental, social and economic character of the Moraine that can be viewed as positive, negative or neutral in nature.
2. In the assessment of any proposed change in land use, the full range of these effects must be carefully compared, weighed and evaluated.

### **Major Outdoor Recreation**

3. Any application to establish or expand major outdoor recreation land uses such as ski hills or golf courses should be viewed as major change in land use requiring full consideration of the full range of potential environmental, social and economic effects.
4. As a minimum, such applications should require an amendment to the local official plan. They should never be permitted as a use within a more general land use category where they can be implemented merely through an amendment to the zoning by-law.
5. New or expanded major outdoor recreation facilities should only be permitted to occur in the Study Area where the applicant can demonstrate that:
  - no significant natural habitat will be destroyed or degraded,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality of the air, water or soil will occur,
  - removal of tree cover and grading are minimized, and
  - a sustainable water supply is available.
6. Golf course design should be required to maximize the retention of natural vegetation and contours of the site as opposed to the more typical manicured/highly landscaped approach. A minimalist approach to the use of water and the application of fertilizers, pesticides and herbicides should also be adopted.

### **Natural Areas/Parks**

7. The Oak Ridges Moraine Area Strategy should provide a framework for determining:
  - what areas should be retained or acquired as natural areas/parks to be owned and/or managed by a public agency, and
  - how management plans will be developed and approved for all publicly owned land in the Oak Ridges Moraine Area.

### **Agriculture**

8. The Oak Ridges Moraine Technical Working Committee should consult with the Ontario Ministry of Agriculture, Food and Rural Affairs to ensure that provincial policy is appropriately addressed in the Strategy.
9. The Strategy should encourage the use of agricultural best management practices to protect ecological form, function, and natural features.
10. The Province of Ontario primarily through the Ministry of Agriculture, Food and Rural Affairs should be encouraged to pursue improved methods of monitoring and regulating the agricultural industry's impact on the natural environment.

### **Resource Extraction**

11. Any application to establish or expand a new sand and gravel pit should be viewed as a major change in land use requiring the evaluation of potential environmental, social and economic effects.
12. As a minimum, such applications should require an amendment to the local official plan. New or expanded facilities should only be permitted where it can be demonstrated that:
  - no significant natural habitat will be destroyed or degraded,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality of the air, water and soil will occur, and
  - no degradation to the visual quality of significant landform features will occur.

13. The Oak Ridges Moraine Area Strategy should address the opportunity to use pit rehabilitation as a vehicle to enhance the ecological integrity of the Moraine. This may include greater use of native plants in rehabilitation, progressive rehabilitation, restoring or re-establishing linkages between natural area and creating opportunities for extensions to trails. In this regard, the ORM Technical Working Committee should explore potential opportunities with both the APAO and MNR.
14. The ORM Technical Working Committee should recommend that the Province, as the highest possible priority, seek changes to existing legislation to provide for the effective control and regulation of the peat extraction industry.
15. Generally, peat extraction and topsoil removal should be discouraged. To the extent possible, municipalities should be encouraged to use existing controls available to them under the Planning Act and the Municipal Act to control and regulate peat extraction and topsoil removal.

#### **Linear Utilities**

16. All new extensions or upgrades to roads, hydro lines and pipelines should have regard to the Oak Ridges Moraine Area Strategy to ensure that the principles and policies are adhered to and it can be demonstrated that:
  - no significant natural areas will be degraded or destroyed,
  - no significant conflicts with adjacent land uses will occur,
  - no degradation to the quality or quantity of air, water and soil will occur, and
  - no degradation to the visual quality of significant landform features will occur.
17. In regard to 16 above, the Province should, as part of the implementation of the Oak Ridges Moraine Area Strategy, address the need to amend the relevant environmental assessment procedure under the Environmental Assessment Act to ensure compliance to the Strategy. In addition, the Province should meet with the appropriate federal department and pipeline companies to encourage compliance to the Strategy as part of the federal Environmentally Assessment and Review Process (EARP).
18. The Province should explore with Ontario Hydro, appropriate road authorities and the pipeline companies the greater use of native plant species on existing utility rights-of-way.

### Urban Uses

19. The Oak Ridges Moraine Area Strategy should provide for the continued growth of urban land use in the context of an appropriate Growth and Settlement Strategy.
20. The majority of new urban growth should occur in fully serviced settlement areas. Growth areas should be clearly defined in urban envelopes delineated on the basis of 10 to 20 years growth projections.
21. Modest growth in unserviced hamlets and villages should be permitted to the extent that it will not overtax the ability of private water and sewer services to provide water in sufficient quality and quantity to the community. Any hamlet or village that anticipates significant growth beyond minor infilling or rounding out, must plan for the eventual conversion to communal water and sewer systems.
22. Growth of urban uses in predominantly rural areas should be regarded as limited, discretionary land uses. They should be permitted only where a comprehensive municipal wide framework has been prepared that demonstrates how the cumulative negative effects have been addressed and minimized.
23. No urban use shall be permitted in:
  - good agricultural land except as permitted under the Foodland Guidelines,
  - high quality aggregate deposits except as permitted under the Mineral Aggregate Resources Policy Statement,
  - flood prone land except as permitted under the Provincial Floodplain Policy Statement,
  - significant natural areas as identified in the Oak Ridges Moraine Area Strategy, and
  - natural area linkages.



24. All applications for urban land use change shall also be required to undertake investigations to address:
- how the quality and quantity of both surface and subsurface water can be improved,
  - how the effects of soil erosion and sedimentation can be minimized or eliminated,
  - how the air quality, noise levels and local climatic conditions can be maintained or improved,
  - how the health and diversity of native plant and animal species will be maintained or enhanced, and
  - how to retain the landform character of the site especially in areas containing significant natural features.



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## **APPENDIX A**

### **Effects of Land Uses and Methods of Overcoming Negative Effects**

**Table A1a - Effects of Ski Hills**

**Table A1b - Effects of Golf Courses**

**Table A2 - Effects of Natural Areas/Parks**

**Table A3 - Effects of Agriculture**

**Table A4 - Effects of Forestry**

**Table A5 - Effects of Aggregate Extraction**

**Table A6 - Effects of Linear Utilities**



## APPENDIX A

**TABLE A1a**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF SKI HILLS**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Employment opportunities during the construction phase and long term jobs, primarily seasonal, for instructors, ski-patrol, etc.</li> </ul>	
<ul style="list-style-type: none"> <li>Provides recreational opportunities that are currently in high demand</li> </ul>	
<ul style="list-style-type: none"> <li>Increased tourism to the surrounding community, i.e. lodging and restaurants</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>May displace other economically or socially desirable land uses (e.g. high potential aggregate areas)</li> </ul>	<ul style="list-style-type: none"> <li>Prevent the establishment of ski hills in high potential aggregate areas</li> </ul>
<ul style="list-style-type: none"> <li>May create conflicts with other established land uses (e.g. agriculture)</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that reasonable mitigative measures are employed to minimize or eliminate possible conflicts including appropriate separation distances</li> </ul>
<ul style="list-style-type: none"> <li>May be perceived by some as an incongruent visual element, especially in predominantly natural areas</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that landscape practices are employed that minimize alteration to the existing land form</li> <li>Minimize removal of natural vegetation</li> </ul>
<ul style="list-style-type: none"> <li>Increased traffic, noise associated with maintenance equipment and lights for night-skiing may be undesirable in rural settings</li> </ul>	<ul style="list-style-type: none"> <li>Employ specific hours for maintenance and for the operation of lights for night-skiing</li> <li>Examine travel routes to and from proposed ski areas</li> </ul>

**TABLE A1a (Continued...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF SKI HILLS**

Criteria/Effects	Methods to Overcome Negative Effects
<b>CHANGES IN AIR QUALITY</b>	
<b>Negative</b>	
· Generally minimal atmospheric emissions are associated with vehicles used for maintenance and operation of the facility	· Adopt conservation practices that minimize harmful emissions
· Landform modification, especially the clearing of vegetation, may affect local climatic conditions (i.e. increased wind exposure)	· Adopt facility designs such as wind breaks to minimize changes to climatic conditions
· May be problems of dust during construction phase	· Adopt dust suppression practices during construction, re-establish vegetation as soon as possible
<b>WATER RESOURCES</b>	
<b>Negative</b>	
· Ski hill may require large quantities of water for snow making which may deplete local water supply in streams and aquifers	· Require hydrogeological investigation to ensure that water withdrawal is sustainable
· Increased runoff due to road grading, building roofs and cleared runs may increase the potential for sedimentation and pollutants to enter surface water	· Encourage infiltration by maintaining areas of natural vegetation and by incorporating storm water management practices (i.e. constructed wetlands to treat runoff)
<b>SOCIAL RESOURCES</b>	
<b>Negative</b>	
· Adopting steep slopes, especially those that were vegetated, may increase runoff and also erosion and sedimentation	· Require appropriate soil erosion and sedimentation controls to protect surface water bodies (e.g. construction of sedimentation basin in concentrated flow situations)  · Retain a vegetation buffer adjacent to waterbodies to trap sediments carried in overland flow

**TABLE A1a (Continued...3)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF SKI HILLS**

Criteria/Effects	Methods to Overcome Negative Effects
<b>LANDFORM RESOURCES</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Modification to the land such as the recontouring and clearing of tree cover, may be incompatible with surrounding land use character</li> </ul>	<ul style="list-style-type: none"> <li>Minimize changes to slopes and clearing of vegetation</li> </ul>
<b>BIOTIC RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Edge effect created by wind breaks may provide habitat for some types of birds and animals</li> </ul>	
<ul style="list-style-type: none"> <li>Unmaintained areas provide browsing and shelter for edge species like white tail deer and some bird species</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>May displace lands with a high biodiversity or important ecological function</li> <li>Create more edge in forest interior habitat therefore decrease the number of interior sensitive plant and animal species</li> </ul>	<ul style="list-style-type: none"> <li>Prevent establishment of ski hills on significant natural areas and ensure that important ecological functions are integrated into the facility design</li> <li>Prohibit forest cover removal that would fragment or destroy woodlots with forest interior habitat</li> </ul>





## APPENDIX A

**TABLE A1b**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF GOLF COURSES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>· Create direct jobs during construction and long-term, seasonal employment during operation (i.e. greens keepers, club house staff, landscapers)</li> </ul>	
<ul style="list-style-type: none"> <li>· Provides recreational opportunities that are currently in high demand</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· May displace other economically or socially desirable land uses (e.g. farming, high potential aggregate areas)</li> </ul>	<ul style="list-style-type: none"> <li>· Avoid establishment of golf courses in high potential aggregate areas</li> </ul>
<ul style="list-style-type: none"> <li>· May create conflicts with other traditional land uses (e.g. agriculture, aggregate extraction)</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure that appropriate mitigation measures are employed to reduce or eliminate possible conflicts including separation distances</li> </ul>
<b>ATMOSPHERIC RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>· May enhance local climatic conditions and air quality with appropriate landscaping techniques</li> </ul>	
<ul style="list-style-type: none"> <li>· May displace land uses that are more harmful to the local climate or air quality</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Generally, minimal emissions associated with related buildings and vehicles</li> </ul>	<ul style="list-style-type: none"> <li>· Adopt conservation measures that minimize harmful emissions</li> </ul>
<ul style="list-style-type: none"> <li>· Land modifications may detrimentally affect local climatic conditions on site (i.e. removal of forest cover may increase ground surface temperature, and exposure, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>· Adopt appropriate design and construction practices that maintain or improve local climatic conditions and air quality</li> </ul>
<ul style="list-style-type: none"> <li>· May be problems of dust pollution during construction phase</li> </ul>	<ul style="list-style-type: none"> <li>· Adopt appropriate mitigative techniques</li> </ul>

**TABLE A1b (Continued...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF GOLF COURSES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>WATER RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>· Risk of erosion and sedimentation is low under properly vegetated conditions</li> </ul>	
<ul style="list-style-type: none"> <li>· May displace land uses that are more harmful to water quality and quantity</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Golf courses require large quantities of water to maintain greens and fairways. May deplete water supply in local streams or aquifers</li> </ul>	<ul style="list-style-type: none"> <li>· Require hydrogeological investigations to ensure that water use is sustainable</li> <li>· In sensitive areas incorporate innovative design that minimize water needs (e.g. install runoff collection ponds in upland areas, use wells located in different ground water drainage areas), minimize area kept in highly manicured groomed condition</li> </ul>
<ul style="list-style-type: none"> <li>· Introduction of large quantities of fertilizer, insecticides and herbicides may degrade water quality in adjacent surface water and subsurface water (polluted runoff elevates nutrient levels and may cause algae blooms that reduce dissolved oxygen content)</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure necessary protection and buffers around surface water bodies</li> <li>· In permeable soils, minimize applications of chemicals and/or install an underdrain system to collect fertilizer or pesticide contaminated leachate</li> <li>· Adopt natural form golf courses that require less chemical applications</li> <li>· Employ integrated pest management programs to reduce reliance on chemicals</li> </ul>
<ul style="list-style-type: none"> <li>· Increased sedimentation in watercourses during construction and due to erosion of steep slopes</li> </ul>	<ul style="list-style-type: none"> <li>· Employ best management practices during construction to control sedimentation. Avoid clearing steep slopes susceptible to erosion, or if clearing is necessary, stage work such that denuded soils can be quickly re-established</li> </ul>

**TABLE A1b (Continued...3)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF GOLF COURSES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>WATER RESOURCES (Continued...)</b>	
<ul style="list-style-type: none"> <li>Elevated water temperatures due to elimination of shading vegetation, reduction of ground water inflow, release of heated water from the surface of ponds, storm water runoff from impervious surfaces</li> </ul>	<ul style="list-style-type: none"> <li>Maintain a vegetated buffer adjacent to watercourses; cross streams with bridges, not culverts; cross streams at right angles; minimize stream crossings</li> <li>Irrigation or other ponds should not be located on intermittent or permanent streams</li> </ul>
<ul style="list-style-type: none"> <li>Channelization of streams for flood control or increasing the available land area for development</li> </ul>	<ul style="list-style-type: none"> <li>Waterways should be retained in a natural unaltered condition</li> </ul>
<b>SOIL RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Sod that is properly maintained will build soil over the long term</li> </ul>	
<ul style="list-style-type: none"> <li>High amount of lush vegetable material increases population of soil organisms as there is a sufficient food supply</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Removal or respreading of topsoil during construction can lead to soil compaction, loss of soil structure, erosion and short term deficiencies of micro nutrients</li> </ul>	<ul style="list-style-type: none"> <li>Employ best management practices</li> <li>Separate soils during construction; strip topsoil during dry periods to minimize compaction</li> </ul>
<ul style="list-style-type: none"> <li>Application of biocides may degrade soil and destroy soil organisms</li> </ul>	<ul style="list-style-type: none"> <li>Employ integrated pest management program to reduce reliance on chemical</li> <li>Adopt natural form golf courses that require less chemical applications</li> </ul>

**TABLE A1b (Continued...4)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF GOLF COURSES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>LANDFORM RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Well maintained golf course may improve visual quality of an area and may displace other uses that are more detrimental to the Moraine landform</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Can result in the destruction or modification of landforms such as kames, kettles, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Require appropriate landform conservation measures in areas where sensitive landforms exist</li> </ul>
<b>BIOTIC RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Edge effect created by windbreaks, rough areas, irrigation ponds, etc., would provide habitat for some types of edge species, birds and animals</li> </ul>	
<ul style="list-style-type: none"> <li>Unmaintained areas provide browsing and shelter for white tail deer and bird species</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>May displace land uses that possess high biodiversity or provide an important ecological function (i.e. wetlands)</li> </ul>	<ul style="list-style-type: none"> <li>Avoid establishment of golf courses in significant natural areas or ensure that important ecological functions are protected (i.e. provincially significant wetlands)</li> </ul>
<ul style="list-style-type: none"> <li>Create more edge therefore decreases the number of forest interior plant and animal species</li> </ul>	<ul style="list-style-type: none"> <li>Prohibit forest cover removal that would fragment or destroy woodlots with forest interior habitat</li> </ul>

**TABLE A1b (Continued...5)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF GOLF COURSES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>BIOTIC RESOURCES (Continued...)</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Introduced grass species and ornamental trees may outcompete with native species</li> </ul>	<ul style="list-style-type: none"> <li>· Encourage use of native plant materials, especially adjacent to valued habitat areas</li> <li>· Replacement trees should be planted for every tree removed. The tree species should be native if possible</li> </ul>
<ul style="list-style-type: none"> <li>· Some pesticides, fertilizers and insecticides are toxic to non-pestiferous insects and ground nesting birds</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure proper application of chemicals</li> <li>· Employ integrated pest management techniques to reduce reliance on chemicals</li> <li>· Reduce or eliminate application of chemicals in sensitive areas (i.e. adjacent to streams)</li> <li>· Use natural form golf courses that require less chemical application</li> </ul>
<ul style="list-style-type: none"> <li>· Herbicide spray can drift into non-target plants causing death or affecting growth of these plants</li> </ul>	<ul style="list-style-type: none"> <li>· Spray under low wind conditions</li> </ul>
<ul style="list-style-type: none"> <li>· Removal of riparian vegetation and runoff from large open areas results in elevated water temperatures and reduces potential for cold water species habitat</li> </ul>	<ul style="list-style-type: none"> <li>· Maintain vegetated buffers adjacent to watercourses</li> </ul>





## APPENDIX A

**TABLE A2**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF NATURAL AREAS/PARKS**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
· Provides a wide range of environmental and social benefits that maintain or enhance psychological health	
· Provides seasonal employment opportunities (park staff, maintenance)	
· Provides opportunities for education about natural ecosystems	
· Recreational opportunities such as canoeing, hiking, nature interpretation	
· Natural areas enhance market value and marketability of adjacent land use areas	
<b>Negative</b>	
· Displaces other land uses that may have greater socio-economic value	· Ensure parks are established to perform appropriate recreational, education or resource protection functions
· Large areas are being preserved for a limited range of activities	· Activities should be compatible with the existing natural environment
· Well-wooded natural areas may be viewed as a security or crime hazard (i.e. avenues of escape for vandals)	· Provide appropriate security fencing where natural area abut high crime risk areas (i.e. backing onto a residential area)
· Potential sources or passageways for nuisance animals (e.g. raccoons, skunks, rabbits, bats, etc.)	· Homeowners and local municipality institute appropriate nuisance animal control programs
· Financial costs are associated with establishing and/or maintaining natural areas	· Park management agencies establish fiscally responsible budget for acquisition, protection and management of natural areas
	· Explore alternative protection and management options that reduce dependence on taxpayer funding

**TABLE A2 (Continued ...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF NATURAL AREAS/PARKS**

Criteria/Effects	Methods to Overcome Negative Effects
<b>ATMOSPHERIC RESOURCES</b>	
<b>Positive</b>	
· Preserved ecosystems enhance air quality and maintain local climatic conditions	
<b>WATER RESOURCES</b>	
<b>Positive</b>	
· The establishment of vegetated natural areas tend to reduce the runoff rates in an area thereby reducing potential for erosion and sedimentation	
· The establishment of natural areas tends to improve soil permeability and improve infiltration and recharge capacity of a site	
· Vegetated riparian corridors and forest cover maintains water quality and baseflow	
<b>Negative</b>	
· Increased tourism traffic/recreation use can jeopardize the health of water resources by increased tourism, shoreline erosion, and sedimentation	· Develop trail systems and other recreational facilities in appropriate locations and restrict access in hazardous or sensitive areas
<b>SOIL RESOURCES</b>	
<b>Positive</b>	
· Self-supporting ecosystems allow for continued nutrient input and maintains or enhances soil productivity and structure	
· Vegetative cover provides protection from erosion and permits infiltration of surface runoff	
<b>Negative</b>	
· Erosion and sedimentation caused by over-used and poorly planned areas	· Develop trail systems and other recreational facilities in appropriate locations and restrict access in hazardous areas (i.e. susceptible to erosion)

**TABLE A2 (Continued ...3)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF NATURAL AREAS/PARKS**

Criteria/Effects	Methods to Overcome Negative Effects
<b>LANDFORM RESOURCES</b>	
<b>Positive</b>	
· Preserved areas remain undisturbed except in areas modified for buildings, roads, and trails	
<b>Negative</b>	
· Impacts related to construction of buildings, trails, etc.	· Building trails, etc. should be properly designed and constructed to minimize impacts
<b>BIOTIC RESOURCES</b>	
<b>Positive</b>	
· The preservation and protection of natural resources for the enjoyment of the public ensures that biotic resources will be accessible to the public in future years	
· Natural areas can maintain or enhance the health and diversity of native plant or animal species	
<b>Negative</b>	
· Biotic resources may be detrimentally affected if the carrying capacity of the park is exceeded for related recreational and educational purposes	· Employ appropriate management techniques which limits usage to capacity of the area



## APPENDIX A

**TABLE A3**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGRICULTURE**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Provides jobs and revenue for local economy, i.e. farm operators, farm equipment dealers, feed mills, fertilizer companies</li> </ul>	
<ul style="list-style-type: none"> <li>Agricultural land represents a valuable part of our cultural heritage</li> </ul>	
<ul style="list-style-type: none"> <li>Agricultural areas create a greenbelt around the city which provide an aesthetically pleasing landscape and urban separators</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Noise, odour and dust from farm activities may create conflict between farm and non-farm residents</li> </ul>	<ul style="list-style-type: none"> <li>Encourage good manure management practices</li> <li>Adoption of good planning and design of non-farm uses to minimize conflicts including appropriate application of Agricultural Code of Practice</li> </ul>
<b>ATMOSPHERIC RESOURCES</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Creation of dust during cultivation and harvesting activities</li> </ul>	
<ul style="list-style-type: none"> <li>Clearing of vegetation (trees) may alter microclimatic conditions by increasing temperatures near the ground surface</li> </ul>	<ul style="list-style-type: none"> <li>Encourage maintenance of hedgerows and stream side vegetation</li> </ul>
<b>WATER RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Vegetative cover reduces erosion and reduces amount of sediment entering watercourses</li> </ul>	

**TABLE A3 (Continued...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGRICULTURE**

Criteria/Effects	Methods to Overcome Negative Effects
<b>WATER RESOURCES (Continued...)</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Improper farming practices such as leaving soil-fallow during winter increases sediment loadings entering streams</li> </ul>	<ul style="list-style-type: none"> <li>Water erosion and sedimentation can be prevented by keeping fields covered with crops or residue</li> </ul>
<ul style="list-style-type: none"> <li>Improper application of fertilizers affect watercourse ecosystem by increasing phosphorus and nitrate levels causing an imbalance of nutrients in the stream</li> </ul>	<ul style="list-style-type: none"> <li>Proper timing and application of fertilizers</li> <li>Maintain a vegetated buffer between fields and watercourses</li> </ul>
<ul style="list-style-type: none"> <li>Removal of overhanging vegetation adjacent to watercourses increases stream temperature</li> </ul>	<ul style="list-style-type: none"> <li>Maintain a buffer adjacent to streams and waterbodies</li> </ul>
<ul style="list-style-type: none"> <li>Overuse of watercourses for irrigation purposes causes short term effects on local water quantity</li> </ul>	<ul style="list-style-type: none"> <li>Use ponds for water storage to reduce reliance of water from streams or ground water</li> <li>Avoid irrigation in full sun when evaporation is the greatest</li> <li>Ensure MOEE permit system properly regulates and maintains impacts of withdrawal of water for irrigation</li> </ul>
<ul style="list-style-type: none"> <li>Improper handling of animal waste (improper manure pile siting, improper application time) creates conditions that affect water quality. These include:               <ul style="list-style-type: none"> <li>nutrient enrichment of surface water</li> <li>dissolved oxygen depletion of surface water due to the addition of manure</li> <li>bacterial contamination of ground water supplies due to over-application of liquid manure or seepage from lagoons</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Ensure that manure is applied as needed, not in excess</li> <li>Solid manure should be spread when the soil is dry and completely thawed, and ideally, tilling should occur within 24 hours</li> <li>Contained manure storage prevents nutrients in manure from being carried in surface runoff</li> </ul>



**TABLE A3 (Continued...3)**  
**OAK RIDGES MORAIN PLANNING STUDY**  
**EFFECTS OF AGRICULTURE**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOIL RESOURCES</b>	
<b>Positive</b>	
· Proper crop rotation combined with soil amendments preserve and improve soil structure	
· Penetration of soil by deep crop plant roots (e.g. alfalfa) increases percolation rates and improves soil aeration	
· Proper application of manure and other amending materials improves soil structure and replenishes nutrients lost due to crop production	
<b>Negative</b>	
· Crop production on drained organic soil results in removal of soil by oxidation and by erosion	<ul style="list-style-type: none"> <li>· Good crop rotations that return a variety of residues to the soil</li> <li>· Reducing tillage where possible</li> <li>· Adding organic material such as manure, compost and other wastes</li> <li>· Keeping tillage shallow</li> </ul>
· Crops such as sod remove a layer of soil during each harvest	· Reduce loss of mineral soil by properly preparing the soil prior to seeding, encouraging rapid root development, and rolling the turf prior to cutting
· Excessive use of inorganic fertilizers and pesticides can be harmful to soil organisms	· The use of integrated pest management may reduce the need for chemical pesticides
· Improper farming techniques ruins soil structure and reduces top soil layer through erosive forces	<ul style="list-style-type: none"> <li>· Employ soil management techniques such as cropping across the slope or along the contour, tillage practices, crop rotation</li> <li>· Other methods to minimize erosion include wind erosion barriers and gully control devices</li> </ul>
· Drainage of wet soil results in loss of organic matter due to oxidation	· Discourage drainage of wetland areas



**TABLE A3 (Continued...4)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGRICULTURE**

Criteria/Effects	Methods to Overcome Negative Effects
<b>LANDFORM RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>· Agricultural landscapes provide a visual variety in the rural area</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Improper farming techniques cause erosion which produces a landscape that is unattractive to look at, e.g.               <ul style="list-style-type: none"> <li>· eroded slopes; and</li> <li>· rivers with high amounts of sediment during spring runoff</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>· Fragile and steeply-sloping (erodible) lands should be retired from farming and planted with permanent vegetation coverage</li> <li>· Proper tillage techniques should minimize erosion in other areas</li> </ul>
<ul style="list-style-type: none"> <li>· Some farming practices results in the destruction of some scenic areas (for example, large tracts of sod land create a landscape that is monotonous)</li> </ul>	<ul style="list-style-type: none"> <li>· Retain some natural vegetation such as hedgerows and grassed swales</li> </ul>
<b>BIOTIC RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>· Orchards and some crops provides suitable habitat for some forms of wildlife</li> </ul>	
<ul style="list-style-type: none"> <li>· Long-term crops (orchards) and use of cover crop creates stable soil conditions for soil inhabitants</li> </ul>	
<ul style="list-style-type: none"> <li>· Fence/hedgerows and abandoned orchards provide habitat for some birds and wildlife</li> </ul>	
<ul style="list-style-type: none"> <li>· Partial clearing and fragmentation of woodlots may improve habitat for edge species plant and animals</li> </ul>	

**TABLE A3 (Continued...5)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGRICULTURE**

Criteria/Effects	Methods to Overcome Negative Effects
<b>BIOTIC RESOURCES (Continued...)</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Clearing or improved drainage within wetlands may destroy habitat for some organisms</li> </ul>	<ul style="list-style-type: none"> <li>· Avoid clearing of wetland areas, minimize</li> </ul>
<ul style="list-style-type: none"> <li>· Clearing of natural vegetated cover that destroy or fragment woodlots may decrease habitat for forest interior dependent species</li> </ul>	<ul style="list-style-type: none"> <li>· Discourage destruction or fragmentation of forest areas that provide forest interior habitat</li> </ul>
<ul style="list-style-type: none"> <li>· Improper application of non-selective herbicides and pesticides kill non-target plants and animals</li> </ul>	<ul style="list-style-type: none"> <li>· Prepare application of herbicides and pesticides</li> <li>· Employ integrated pest management techniques that reduce amount of biocide application</li> </ul>
<ul style="list-style-type: none"> <li>· Increased water temperature due to the removal of riparian vegetation or forest cover results in the reduced capability of a stream to support cold water species</li> </ul>	<ul style="list-style-type: none"> <li>· Fencing cattle out of streams will reduce water pollution and allow vegetation to establish; alternative livestock watering devices should be employed</li> <li>· Watercourses can be protected by planting permanent vegetated buffer strips</li> </ul>



## APPENDIX A

**TABLE A4**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF FORESTRY**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
· Provides a wide range of economic and social benefits	
· Provides employment opportunities	
· Provides opportunities for education about proper resource management	
<b>Negative</b>	
· May cause conflicts with other uses of woodland (e.g. lessens recreational enjoyment)	<ul style="list-style-type: none"> <li>· Ensure that forestry practice minimizes impacts on recreational opportunities in recreational areas and natural area parks</li> <li>· Improve logging practices or tree extraction methods</li> </ul>
<b>ATMOSPHERIC RESOURCES</b>	
<b>Positive</b>	
· Good forestry practice tends to emphasize growth and productivity which also directly enhances woodlands ability to remove carbon, and pollutants from atmosphere	
<b>Negative</b>	
· Removal of trees on selective basis may cause localized changes in the microclimate that are undesirable (e.g. create wind tunnel effects)	· Adopt appropriate forest management plans that consider microclimatological impacts on adjacent land uses
<b>WATER RESOURCES</b>	
<b>Positive</b>	
· Good forestry practice tends to emphasize growth and productivity which tend to reduce soil erosion, and improve soil permeability and structure, thus improving water quality and regulating water flow	

**TABLE A4 (Continued...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF FORESTRY**

Criteria/Effects	Methods to Overcome Negative Effects
<b>WATER RESOURCES (Continued...)</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Removal of trees in sensitive ecological situations may increase erosion and sedimentation that could degrade stream quality.</li> </ul>	<ul style="list-style-type: none"> <li>Adopt appropriate forest management plans that prohibit or severely restrict tree harvesting in sensitive ecological situations.</li> <li>Improve tree extraction methodology, i.e. make tree extraction methodology more environmentally sensitive.</li> </ul>
<b>SOIL RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Good forestry practice tends to emphasize growth and productivity which enhance soil structure.</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Tree harvesting in sensitive soil situations may cause soil compaction and erosion that degrade soil structure.</li> </ul>	<ul style="list-style-type: none"> <li>Adopt appropriate forest management plans that prohibit or severely restrict tree harvesting in sensitive soil situations.</li> <li>Sensitive harvesting methods.</li> </ul>
<b>LANDFORM</b>	
Effects of forestry tend to be minimal or temporary in situations where selective cutting techniques are used.	
<b>BIOTIC RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Tree harvesting activities tend to benefit plant and animal species that prefer open, habitat situations.</li> </ul>	

**TABLE A4 (Continued...3)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF FORESTRY**

Criteria/Effects	Methods to Overcome Negative Effects
<b>BIOTIC RESOURCES (Continued...)</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Tree harvesting activities can destroy or degrade habitat of plants and animals that prefer closed, forest canopy.</li> <li>· Tree harvesting activities can reduce tree species that are selectively removed because of low timber value.</li> <li>· Tree harvesting activities can destroy or degrade animal species that depend on den or cavity habitat trees that may be selectively removed.</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure forest management plans consider the need to provide for long term provision of interior species habitat.</li> <li>· Ensure forest management plans consider need to maintain diversity of tree species including those of low timber value.</li> <li>· Ensure forest management plans consider need to maintain den or cavity habitat trees.</li> </ul>





## APPENDIX A

**TABLE A5**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGGREGATE EXTRACTION**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
· Creates jobs during the establishment, operation and rehabilitation of the operation	
· Provides a supply of aggregates essential to Ontario's construction industry	
· Rehabilitation of pits and quarries provides opportunities for recreation, fish and wildlife habitat and forest production	
<b>Negative</b>	
· May displace other economically or socially desirable land uses (i.e. agricultural operations, natural areas)	<ul style="list-style-type: none"> <li>· Ensure rehabilitation returns a site to an appropriate after use</li> <li>· Prohibit extractive operation in highly sensitive natural areas where rehabilitation efforts are not capable of recovering the ecological form or functions of the area</li> </ul>
· May create land use conflicts with other land uses (i.e. agricultural, rural recreation)	· Ensure necessary mitigative measures are employed to minimize or eliminate possible effects (i.e. visual screens, hours of operation and hauling, dust control, separation distances)
· Create highway conflicts through extensive use of local roads for truck transportation of material	<ul style="list-style-type: none"> <li>· Require upgrading of road to effectively and safely convey truck traffic</li> <li>· Choose least disruptive haul route</li> <li>· Provide for direct link to provincial/regional road system where possible</li> </ul>

**TABLE A5 (Continued ...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGGREGATE EXTRACTION**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC (Continued...)</b>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Extensive aggregate operations may affect ground water levels resulting in local shallow wells drying up</li> </ul>	<ul style="list-style-type: none"> <li>· Require hydrogeological evaluation to determine effects in local ground water level and supply prior to extraction</li> <li>· Where appropriate, restrict excavation below water table or pumping of water</li> </ul>
<ul style="list-style-type: none"> <li>· Active gravel pits create noise and dust. These factors and the unappealing view of an extraction operation may be undesirable to local residents</li> </ul>	<ul style="list-style-type: none"> <li>· Employ progressive rehabilitation techniques and screening or berms to reduce visual impacts. Restrict hours of operation of noisy machinery</li> <li>· Employ appropriate noise and dust suppression techniques</li> </ul>
<b>ATMOSPHERIC RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>· Proper rehabilitation of site after extraction is complete may improve long term air quality</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>· Pollutant emissions associated with vehicles used in or construction of extractive and rehabilitation operations</li> </ul>	<ul style="list-style-type: none"> <li>· Adopt conservation practices that minimize harmful emissions</li> </ul>
<ul style="list-style-type: none"> <li>· Land modifications may detrimentally affect local climatic conditions and air quality</li> </ul>	<ul style="list-style-type: none"> <li>· Progressive rehabilitation techniques will minimize area of cleared and exposed surface</li> </ul>
<ul style="list-style-type: none"> <li>· Dust is created by grading, extraction and truck traffic on gravel haul roads</li> </ul>	<ul style="list-style-type: none"> <li>· Employ suitable dust suppression techniques</li> </ul>

**TABLE A5 (Continued ...3)**  
**OAK RIDGES MORAINÉ PLANNING STUDY**  
**EFFECTS OF AGGREGATE EXTRACTION**

Criteria/Effects	Methods to Overcome Negative Effects
<b>WATER RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Proper pit operation and rehabilitative water management practices can enhance recharge, reduce off-site runoff and erosion</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Excavation may disrupt or change shallow near surface aquifers which may be important to maintaining baseflow, spawning areas, and stream temperatures</li> </ul>	<ul style="list-style-type: none"> <li>Require hydrogeological investigations to assess impacts and employ proper mitigative measures</li> </ul>
<b>SOIL RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>Rehabilitation can be employed to retain or enhance the landform character in the context of the surrounding landscape</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Improper soil stripping (i.e. failure to separate topsoil from subsoil and overburden) results in inferior soils in rehabilitation and short term deficiencies of micro nutrients</li> </ul>	<ul style="list-style-type: none"> <li>Employ progressive rehabilitation practices</li> <li>Properly strip, separate and store topsoil during site preparation</li> </ul>
<ul style="list-style-type: none"> <li>Excessive traffic on subsoil results in compaction and loss of soil structure</li> </ul>	<ul style="list-style-type: none"> <li>Topsoil should be stripped during dry periods to minimize compaction and be stored in an area where compaction will be minimal</li> </ul>
<ul style="list-style-type: none"> <li>Exposed soils on the site are prone to erosive forces such as wind and water</li> </ul>	<ul style="list-style-type: none"> <li>Employ ongoing soil erosion and sedimentation control techniques throughout the life of the operation</li> <li>Employ progressive rehabilitation techniques to reduce area of exposed soils</li> </ul>

**TABLE A5 (Continued ...4)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF AGGREGATE EXTRACTION**

Criteria/Effects	Methods to Overcome Negative Effects
<b>LANDFORM RESOURCES</b>	
<b>Positive</b>	
<ul style="list-style-type: none"> <li>With proper rehabilitation, the biodiversity and ecological health of a site may be increased</li> </ul>	<ul style="list-style-type: none"> <li>See MNR publication: <b>Rehabilitation of Pits and Quarries for Forest Production, 1989; Rehabilitation of Pits and Quarries for Fish and Wildlife, 1987</b></li> </ul>
<ul style="list-style-type: none"> <li>Rehabilitation provides opportunities to restore natural corridors and re-establish linkages between natural areas</li> </ul>	
<b>Negative</b>	
<ul style="list-style-type: none"> <li>Removal of natural vegetative cover removes habitat for wildlife</li> </ul>	<ul style="list-style-type: none"> <li>Replace vegetation with native materials</li> <li>Progressive rehabilitation of pits and quarries reduces effect on wildlife as it can produce a vegetation cover in varied stages of successional development</li> <li>Avoid extraction in sensitive habitat areas where rehabilitation to existing conditions is not possible</li> </ul>
<ul style="list-style-type: none"> <li>Extraction of aggregate resources near streams and rivers destroys riparian habitat and sedimentation detrimentally affects fish habitat</li> </ul>	<ul style="list-style-type: none"> <li>Wherever possible, retain existing stands of native vegetation; priority areas include mature stands over poor quality deposits or natural connections to nearby wildlife habitat areas</li> <li>Maintain a buffer between aggregate operations and waterbodies</li> </ul>

**APPENDIX A**  
**TABLE A6**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF LINEAR UTILITIES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC</b>	
<b>Positive</b>	
· Job creation during construction and maintenance	
· Provides essential services such as electricity, gas and/or road network to Ontario's residents	
· Cleared areas such as hydro lines create an off-road corridor for activities such as snowmobiling, and trails	
<b>Negative</b>	
· Removes land from other uses such as agriculture and significant natural areas	· Some land use activities may be permitted in the ROW of transmission lines; for example, in agricultural areas as the size of the tower base is reduced to allow crop production
· The fragmentation of agricultural land may disrupt farm operations	· The use of food lands for utilities should be minimized · Cross lots with the existing grid pattern
· Loss of land value from being adjacent to a hydro transmission line	
· Removal of the right-of-way from the municipal tax base	
· Many perceive hydro lines to be an aesthetically unpleasing feature in the landscape	· Screen if possible with natural or planted vegetation · Installation of landscaping in advance of site completion
· Perceived health risks associated with transmission lines (i.e. electric and magnetic fields)	

**TABLE A6 (Continued ...2)**  
**OAK RIDGES MORaine PLANNING STUDY**  
**EFFECTS OF LINEAR UTILITIES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOCIO-ECONOMIC (Continued...)</b>	
<b>Negative</b>	
· Siting of such facilities may involve displacement of residents and fragmentation of property	· Minimize displacement of people and fragmentation of property with careful siting
· Potential access for trespass onto private property	· Use gates, obstacles to prevent access
<b>ATMOSPHERIC RESOURCES</b>	
<b>Negative</b>	
· Clearing of vegetation varies microclimatic conditions and increases ground temperatures	· Minimize clearing of vegetation · Replant within ROW
· Spraying of herbicides in the right-of-way add pollutants to the air	· Employ mechanical methods to reduce use of herbicides
<b>WATER RESOURCES</b>	
<b>Negative</b>	
· Increase in runoff due to removal of vegetation	· Minimize clearing of slopes adjacent to streams
· Alteration to watercourses such as the placement of culverts	· Installation of an appropriate crossing device · Use of sediment traps or settling ponds · Retain shrubby streambank vegetation
· Runoff from herbicides and pesticides applied to the right-of-way can affect the watercourse ecosystem	· Selective spraying or mechanical harvesting of plants
· De-icing salt applied to roads and other pollutants can enter watercourse and degrade quality	· Employ storm water management practices



**TABLE A6 (Continued ...3)  
OAK RIDGES MORaine PLANNING STUDY  
EFFECTS OF LINEAR UTILITIES**

Criteria/Effects	Methods to Overcome Negative Effects
<b>SOIL RESOURCES</b>	
<b>Negative</b>	
· Soil profile is altered in road and pipeline construction	· Proper timing of construction, avoid wet soils
· Clearing of vegetation and application of pesticides can affect soil nutrients	· Minimize clearing of vegetation
<b>BIOTIC RESOURCES</b>	
<b>Positive</b>	
· Edge effect created by the linear corridor provides habitat for some species of birds and animals	
<b>Negative</b>	
· Cleared areas may pose barriers to the movement pattern of some animals	· Identify movement patterns and minimize disruption (i.e. cross at right angles)
· Some pesticides are toxic to non-pestiferous insects and ground nesting birds	· Mechanical harvesting will reduce need for chemicals
· Loss of habitat, breeding and/or food source for wildlife due to removal and clearing of vegetation within the right-of-way	· Avoidance of areas containing rare/endangered species habitat · Avoidance of other sensitive areas





## **APPENDIX B**

### **Effects of Urban Land Uses and Methods of Overcoming Negative Effects**

**Table B1 - Urban Uses in Rural Areas**

**Table B2 - Urban Uses in Hamlets and Villages**

**Table B3 - Urban Uses in Towns and Cities**



TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>ECONOMICS</b>	
<b>Disruption and Displacement of Agricultural Activities</b>	
<i>Negative</i>	
Displaces agricultural land and their associated businesses.	Avoid location of this type of land use on valuable agricultural land or farms according to the Ministry of Agriculture, Food and Rural Affairs Foodland Guidelines.
	Promote the recognition of agricultural land/businesses as an important resource and business sector.
May reduce economic viability of adjacent agriculture where urban uses create conflict with nearby farm operations (e.g. water and soil contamination, trespass on agricultural land, vandalism and depleted ground water resources).	Plan for/permit this urban land use where it will not conflict with present or future agricultural operations.
May fragment farm operations such that they are too small to be cultivated economically and reduced economic viability of adjacent farms.	Consider the fragmentation of agricultural operations when planning for/permitting this land use.
Agri-business (e.g. equipment sales) may also be affected by reduced farm operations in area.	Consider the incremental effects of rural development on agriculture and related agri-businesses when planning/approving this type of development.
Farmland in the vicinity of urban uses is more likely to be used for non-food producing activities such as hobby farms.	Consider the spin-off effects on food production and agriculture when planning/ permitting this land use.
Encroaching urbanization decreases certainty for farmers about ability/desire to maintain farm or make improvements.	Consider the economic implications to agricultural investment in adjacent areas when planning/permitting this land use.
Poor agricultural land management and farming practices by absentee land owners/ tenants contribute to environmental degradation.	Education programs.
Non-farm development contributes to the inflationary effects on land prices, pushing the expected value for agricultural land far beyond its value for agricultural purposes making it difficult for farmers to afford land. Property taxes may increase.	Consider the economic implications for the long term viability, sustainability of farming businesses when planning/permitting this land use. Tax agricultural land at its agricultural value regardless of its market value for residential or industrial uses.
Concentration of several "small scale" developments may result in changes to agriculture (or all criteria above) not envisaged by permitting governments.	Consider the cumulative effects of this type of development for each municipality.

## APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Change to Level of Municipal Service</b>	
<i>Positive</i>	
Generates increased municipal revenues through increased municipal assessment rates relative to most land uses displaced such as agriculture.	
<i>Negative</i>	
Generates costs to the municipality and school boards in the provision of social and municipal services (e.g. policing, fire protection, busing, library, garbage pick-up). Rural residents may demand additional services over time such as sewer and water supply or the recreational services expected in urban areas (e.g. pools, arenas).	Study the true costs to municipalities and school boards over a long time frame of this type of land use on a general basis.  Consider the true costs to municipalities and school boards when planning for and permitting this land use on a site specific basis. Ensure that revenue generated through taxes fully cover costs to community.
May be increased costs to municipality for local transportation infrastructure.	Consider better information programs to prospective buyers in rural areas regarding servicing expectations.  Study the true transportation costs to municipalities and school boards of this type of land use on a general basis.
<b>Change to Existing and Future Business Opportunities and Jobs</b>	Consider the true transportation costs to municipalities and school boards when planning for and permitting this land use on a site specific basis.
<i>Positive</i>	
Generates opportunities/jobs in the construction industry including spin-off benefits to support industries (e.g. wood products industry, landscape services, real estate, etc.).	
Generates long term opportunities/jobs related to upkeep and maintenance of land (e.g. lawn care, home improvement, home repair, etc.).	
Generates opportunities/jobs in support sectors of the economy (e.g. local retail opportunities).	

## APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<i>Negative</i>	
Causes unemployment and loss of business to farmers, farm equipment dealers, grain/cattle shippers, etc. and related industries.	Prohibit this type of development when it would be disruptive to the agricultural economy.
May reduce economic viability of adjacent businesses where it creates land use conflicts (see agriculture and non-renewable resource effects for specific examples).	See agriculture and non-renewable resources effects.
<b>Effect on Resource Extraction</b>	
<i>Negative</i>	
Displaces economic opportunities from the resource extraction businesses displaced.	Avoid location of this type of land use on valuable aggregate resources according to the Ministry of Natural Resources Mineral Aggregate Resources Policy Statement.
May reduce economic viability of adjacent resource extraction industries if siting of rural uses allowed to conflict with resource extraction industries.	Plan for/permit this type of land use where it will not conflict with present or future aggregate resource extraction operations.
<b>SOCIAL ENVIRONMENT</b>	
<b>Change in Accessibility to Recreation Areas</b>	
<i>Positive</i>	
Proximity to natural areas increases opportunities for outdoor/recreation experience for new residents.	
<b>Satisfaction of Housing Demand</b>	
<i>Positive</i>	
Satisfies public demand for housing such as estate residential and strip residential (usually through severances).	
Provides a type of housing perceived as an attractive alternative to housing in larger settlement areas by a certain segment of the population (i.e., some believe that residing in a rural or small community is healthier and more socially enriching than more urbanized alternatives).	

# APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Change to Community Character, Cohesion, Structure and Stability	
<i>Negative</i>	
New residential land uses may not be compatible with the character of existing settlement areas or rural areas (e.g. larger lots).	Site and design these land uses to be compatible with existing settlement or rural areas using landscaping, building design and planning controls.  Municipalities should undertake comprehensive studies regarding the need and demand for this land use type in the planning process.
Concentration of several 'small scale' developments may result in change in character of community.	Consider the social impacts of this type of land use in the planning process.  Consider the cumulative effects of this type of development for each municipality.
Where scattered rural residences occur adjacent to fully serviced areas, a disruption to the rural/urban fringe occurs making normal expansion of that settlement area difficult, both in the integration of the lot pattern, and urban form with respect to servicing and character.	Consider the social implications of this type of land use for adjacent, fully services areas.
<b>Change to Visual Characteristics of Landform</b>	
<i>Positive</i>	
Visual character of landform can be improved through innovative site design and landscaping where this land use displaces other types of land uses that are visually unattractive (e.g. aggregate extraction, derelict land, heavy industrial uses).	
<i>Negative</i>	
Extensive land grading and the introduction of incompatible building design can decrease visual variety of the landscape and destroy distinctive elements of the landscape.	Use compatible building design and landscaping techniques and planning controls to enhance visual character.  Minimize changes to the basic topographic character of the area.  Minimize grading of the area.  Avoid and protect natural attributes of the site.



TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
NATURAL ENVIRONMENT	
Change in Air Quality	
<i>Positive</i>	
Air quality conditions may be improved by small scale estate residential thus displacing certain types of land use (e.g. intensive agriculture) that have had negative impacts on air quality.	
<i>Negative</i>	
air emissions impair air quality (e.g. vehicle exhausts, effects of home heating).	Consider effects on air quality when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. car pooling and emission controls).
	Consider/support programs to minimize home heating emissions (build energy-efficient homes).
	Encourage development practices and land use locations which minimize vegetation removal. Therefore, increasing production of oxygen.
	Consider effects on air quality when undertaking comprehensive land use planning.
Land modifications and vegetation removal may affect microclimatic conditions (e.g. increased exposure to wind, reduced shade).	Encourage development practices and land use locations which minimize vegetation removal and unnecessary/damaging land modifications.
Increased dependence on the automobile for commuting to large urban centres for most day-to-day activities degrades regional air quality.	Consider effects on air quality and energy consumption when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. encourage car pooling and emission controls).

# APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Change in Potential for Flooding</b>	
<i>Negative</i>	
Introduction of impermeable surfaces (asphalt) and the regrading and compacting of soil can modify the hydrogeologic and hydrologic regime of an area. This can result in such negative impacts as increased storm water run-off and greater potential for flooding downstream.	<p>Consider the implications of this type of land use on storm water run-off for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Reduce amount of impermeable surfaces.</p> <p>Aerate compacted soils after construction.</p> <p>Avoid siting this land use on highly permeable soils.</p> <p>Use best management practices to minimize run-off efficiency.</p>
<b>Change in Potential for Erosion/Sedimentation</b>	
<i>Positive</i>	
Erosion and sedimentation may be reduced if this type of land use displaces a land use that has a high rate of erosion/sedimentation (e.g. intensive agriculture with poor land stewardship).	
<i>Negative</i>	
<p>Introduction of impermeable surfaces and the regrading and compacting of soil can modify the hydrogeologic and hydrologic regime of an area. This can result in increased erosion and sedimentation and increased sediment levels in surface water. (Construction sites are reported to contribute 10 times more sediment than cultivated land and 2000 times more than undisturbed forest land (Klees, 1991).)</p> <p>Increased sediment levels can reduce stream channel capacity, irritate or kill fish and aquatic organisms, and increase the absorption of contaminants such as pesticides on sediments that are carried into receiving waters.</p>	<p>Consider the implication of this type of land use on erosion/sedimentation for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Use development practices which minimize soil erosion (e.g. revegetation, protection of slopes, protection of watercourses with berms, avoidance of high slope areas and soils that are susceptible to erosion).</p>

# APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS		METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Change to Surface Water Quality</b>		
<i>Positive</i>		
Surface water quality may be improved when this type of land use displaces a land use that negatively impacts water quality (e.g. intensive agriculture).		
<i>Negative</i>		
The presence of this land use type introduces additional harmful or deleterious substances that may reduce the quality of surface water through:		Consider the implications of this type of land use on quality of surface water for each individual proposed development and the cumulative effects of this type of land use.
<ul style="list-style-type: none"> <li>● introduction of pesticides and fertilizer;</li> <li>● introduction of pollutants from car exhausts and road salts;</li> <li>● introduction of pathogens and additional chemicals from septic tank effluents;</li> <li>● oils and waste fluids from auto wreckers.</li> </ul>		Control use of pesticides and fertilizers.
		Monitor and attempt to reduce use of road salts. Use alternatives - collect used oil and other automotive fluids.
		Encourage use of public transit.
		Ensure adequate septic systems are used in existing and new development. Use best management practices.
		Ensure best management practices are used for storm water management (e.g. settling ponds, communal systems).
		Avoid sensitive watercourses as defined by regional and Provincial agencies including the Conservation Authorities (e.g. cold water fisheries and habitat, kettle lakes).
<b>Change to Groundwater Quality</b>		
<i>Positive</i>		
Groundwater quality may be improved when this type of land use displaces a land use that negatively impacts water quality (e.g. intensive agriculture).		

# APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<i>Negative</i>	
<p>The presence of this land use type introduces additional harmful or deleterious substances that may reduce the quality of groundwater through:</p> <ul style="list-style-type: none"> <li>oil and waste fluids from auto wreckers;</li> <li>introduction of pesticides and fertilizers;</li> <li>introduction of pollutants from car exhausts and road salts;</li> <li>introduction of pathogens and harmful chemicals from pet droppings; and</li> <li>introduction of pathogens and additional chemicals from septic tank effluents.</li> </ul>	<p>Consider the effects on groundwater quantity of each individual application and the cumulative effects of this land use type.</p> <p>Minimize groundwater removal through best management practices and efficient supplies.</p> <p>Proper site decommissioning and recycling of usable waste products.</p>
<b>Change in Quantity of Groundwater</b>	
<i>Negative</i>	
<p>Introduction of impermeable surfaces and the regrading and compacting of soil can modify the hydrogeologic and hydrologic regime of an area. This can result in reduced recharge capacity and reduced storage in groundwater.</p>	<p>Consider the effects on groundwater quantity of each individual application and the cumulative effects of this land use type.</p> <p>Minimize the use of impermeable surfaces.</p> <p>Aerate compacted soils where possible after construction.</p> <p>Avoid siting this land use on highly permeable soils.</p> <p>Use best management practices to minimize run-off efficiency.</p>
<p>The presence of this land use type may reduce groundwater supplies through removal of groundwater for domestic purposes in excess of the replacement capacity of the natural system.</p> <p>When wells are spaced in relatively close proximity and pumping is excessive, the removal in one area may cause another well to go dry. Continued overdraft of groundwater can disrupt water table ponds and bogs; baseflow of streams which are sustained by groundwater are curtailed, and water quality is degraded as reduced stream flow allows pollutants to be more concentrated.</p>	<p>Consider the effects on groundwater quantity of each individual application and the cumulative effects of this land use type.</p> <p>Minimize groundwater removal through best management practices and efficient supplies.</p>
<p>Baseflow may be reduced through decreased infiltration.</p>	<p>See practices above.</p>

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Change to Soil Resources and Highly Permeable Soils	
<i>Positive</i>	
Soil health and productivity can be improved where this land use displaces other types of land use that have degraded the soil profile (e.g. aggregate extraction, intensive farming).	
<i>Negative</i>	
The introduction of certain chemicals (e.g. pesticides and fertilizers) may degrade soil health.	Control use of pesticides and fertilizers. Consider integrated pest management practices.
The soil profile is disturbed to accommodate the introduction of buildings, structures and roads.	Use best management practices in soil conservation, rehabilitation and reuse.
Soil structure can be degraded by soil compaction and land use activity.	Use best management practices in soil conservation, rehabilitation and reuse.
Productive soils are displaced by this type of land use and reuse of topsoil may not allow achievement of previous productivity.	Avoid highly productive soils as defined by the Ministry of Agriculture, Food and Rural Affairs.
Highly permeable soils are important to the recharge capacity and water quality of aquifer systems. This type of land use may: <ul style="list-style-type: none"> <li>cover permeable soils and reduce recharge capacity; and</li> <li>degrade groundwater resources if located on or near highly permeable soils.</li> </ul>	<p>Minimize development of impermeable surfaces, regrading and compacting of soils.</p> <p>Avoid siting this land use on highly permeable soils.</p> <p>Use best management practices to minimize run-off efficiency.</p> <p>Control use of pesticides, herbicides and fertilizers.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Ensure adequate septic systems are used in existing and new development. Use best management practices.</p> <p>Consider the effects on highly permeable soils (i.e., ground water quantity and quality) of each individual application and the cumulative effects of this land use type.</p>

# APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Displacement or Disruption of Significant Natural Areas</b>	
<i>Negative</i>	
Significant natural areas may be displaced to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid significant natural areas as defined by local, regional and provincial agencies including the Conservation Authorities.
Significant natural areas may be indirectly destroyed or degraded through:	Under take best management practices to preserve and enhance woodlots and trees (e.g. protect hedgerows, revegetation, tree root protection, etc.).
<ul style="list-style-type: none"> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• fragmentation of natural habitat;</li> <li>• changes in micro climatological character;</li> <li>• increased contact with humans; and</li> <li>• introduction of non-native plant and animals species.</li> </ul>	Under take the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.
<b>Displacement or Disruption to Woodlands</b>	Control the introduction of non-native plant and animal species into woodlands.
<i>Negative</i>	
Woodlands may be displaced to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid high quality woodlands.
Woodlands may be indirectly destroyed or degraded through:	Under take best management practices to preserve and enhance woodlots and trees (e.g. protect hedgerows, revegetation, tree root protection, etc.).
<ul style="list-style-type: none"> <li>• construction measures that do not protect and enhance woodlands;</li> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• changes in micro climatological character; and</li> <li>• introduction of non-native plant and animal species.</li> </ul>	Under take the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.
	Control the introduction of non-native plant and animal species into woodlands.



**TABLE B1**  
**OAK RIDGES MORaine**  
**URBAN USES IN RURAL AREAS**  
 (continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Disruption to Watercourses and Lakes</b>	
<i>Negative</i>	
Watercourses and lakes may be disrupted to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid watercourses and lakes including a buffer strip.  Where possible, new development should incorporate design measures which rehabilitate degraded stream corridors.
Watercourses and lakes may be indirectly destroyed or degraded through: <ul style="list-style-type: none"> <li>● removal of streambank and riparian vegetation;</li> <li>● reductions in air, water and soil quality;</li> <li>● changes to the hydrogeological regime;</li> <li>● introduction of instream structures;</li> <li>● off-site erosion and sedimentation;</li> <li>● fragmentation of natural habitat;</li> <li>● introduction of toxic materials and additional nutrients;</li> <li>● changes in micro climatological character;</li> <li>● increased contact with humans;</li> <li>● introduction of non-native plant and animals species;</li> <li>● reduction of stream length.</li> </ul>	Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.  Undertake comprehensive studies of the watercourses and lakes for hydrogeological and hydrological effects prior to permitting development.
<b>Disruption to Natural Corridors/Open Space Linkages</b>	
<i>Negative</i>	
This type of land use may fragment natural corridors and open space linkages. This disruption may threaten the ecological integrity of the natural system. Fragmentation may result from direct displacement of natural areas or disruption as noted above.	Avoid natural corridors/open space linkages.  Demonstrate that planned land use will protect and enhance natural corridors/open space linkage through avoidance and best management practices for off-site disruption (e.g. ground, surface water, air quality and activity effects such as noise).



# APPENDIX B

TABLE B1  
OAK RIDGES MORaine  
URBAN USES IN RURAL AREAS  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Change in Use of Non-Renewable Resources	
<i>Negative</i>	
This type of land use requires reliance on automobile transportation with resulting higher use of energy (and associated air quality degradation from transportation emissions).	Encourage reliance on transit use and land uses types which are more compatible with transit use.
GTA Urban Structures Concepts (1990) study showed that the "spread land use concept" was less efficient and effective in providing human services which may also increase use of non-renewable resources.	Encourage land use types (e.g. more compact/centralized) which provide services in a more efficient and effective manner.

**TABLE B2**  
**OAK RIDGES MORaine**  
**URBAN USES IN HAMLETS AND VILLAGES**

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>ECONOMICS</b>	
<b>Disruption and Displacement of Agricultural Activities</b>	
<i>Negative</i>	
May displace agricultural land and businesses on land already within settlement areas.	Avoid location of this type of land use on valuable agricultural land or farms according to the Ministry of Agriculture, Food and Rural Affairs Foodland Guidelines.
	Promote the recognition of agricultural land/businesses as an important resource and business sector.
May reduce economic viability of adjacent agriculture where it creates conflicts with nearby farm operations (e.g. trespass on agricultural land, vandalism).	Plan for/permit this type of land use where it will not conflict with present or future agricultural operations.
May fragment farm operations and reduce economic viability of adjacent farms but low likelihood because lands to be developed are within settlement areas.	Consider the fragmentation of agricultural operations when planning for/permitting this land use.
Farmland in the vicinity of urban uses is more likely to be used for non-food producing activities such as hobby farms or horse farms.	Consider the spin-off effects on food production and agriculture when planning/ permitting this land use.
Poor agricultural land management and farming practices of absentee land owners/ tenants contribute to environmental degradation and economic losses.	Consider the potential for environmental degradation and economic losses for adjacent agricultural when planning/permitting this land use.
<b>Change to Level of Municipal Service</b>	
<i>Positive</i>	
Generates increased municipal revenues through increased municipal assessment rates relative to most land uses displaced such as agriculture.	
<i>Negative</i>	
Generates costs to the municipality and school boards in the provision of social and municipal services (e.g. policing, fire protection, busing, library, garbage pick-up). But new development may share existing services in the settlement areas. Rural residents may demand additional services over time such as sewer and water supply or recreational services expected in larger urban areas (e.g. pools, arenas).	Study the true costs to municipalities and school boards over a long time frame of this type of land use on a general basis.  Consider the true costs to municipalities and school boards when planning for and permitting this land use.
	Consider better information programs to prospective buyers in small settlement areas regarding servicing expectations.

## APPENDIX B

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
May be increased costs to municipality for local transportation infrastructure but existing settlement infrastructure can be used and expanded.	Study the true transportation costs to municipalities and school boards of this type of land use on a general basis.  Consider the true transportation costs to municipalities and school boards when planning for and permitting this land use.
<b>Change to Existing and Future Business Opportunities and Jobs</b>	
<i>Positive</i>	
Generates opportunities/jobs in the construction industry including spin-off benefits to support industries (e.g. wood products industry, landscape services, real estate, etc.).	
Generates long term opportunities/jobs related to upkeep and maintenance of land (e.g. lawn care, home improvement, home repair, etc.).	
Generates opportunities/jobs in support sectors of the economy (e.g. local retail opportunities).	
<i>Negative</i>	
May reduce economic viability of adjacent businesses where it creates land use conflicts (see agriculture and non-renewable resource effects for specific examples) but effects should be minimal because new development is in settlement areas.	See agriculture and non-renewable resources effects.
<b>Effect on Resource Extraction</b>	
<i>Positive</i>	
Concentrated development reduces potential for displacement or disruption to aggregate resources within settlement areas relative to dispersed rural development.	
<i>Negative</i>	
May displace economic opportunities from the resource extraction businesses displaced but land already within settlement areas.	Avoid location of this type of land use on valuable aggregate resources according to the Ministry of Natural Resources legislation, policies and guidelines.
May reduce economic viability of adjacent resource extraction industries if siting of rural uses allowed to conflict with resource extraction industries; but land to be developed already in settlement areas so effects should be minimal.	Plan for/permit this type of land use where it will not conflict with present or future aggregate resource extraction operations.

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>SOCIAL ENVIRONMENT</b>	
<b>Change in Accessibility to Recreation Areas</b>	
<i>Positive</i>	
Retains rural areas for open space recreation opportunities.	
<i>Negative</i>	
Proximity to natural areas with opportunities for outdoor/recreation experience is not enhanced.	Undertake comprehensive tourism and recreation demand and needs studies.
<b>Satisfaction of Housing Demand</b>	
<i>Positive</i>	
Satisfies public demand for housing.	
Provides an alternative to housing in settlement areas.	
<i>Negative</i>	
Does not provide rural type of housing perceived as an attractive alternative to housing in settlement areas by a certain segment of the population (i.e., some believe that residing in a rural or small community is healthier and more socially enriching than more urbanized alternatives).	Undertake community education programs on the economic and environmental advantages of living in settlement areas.  Provide some dispersed rural residential housing opportunities.
<b>Change to Community Character, Cohesion, Structure and Stability</b>	
<i>Positive</i>	
Community character of rural areas can be maintained.	

# APPENDIX B

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<i>Negative</i>	
Increased size and changed character of community may not be compatible with the existing hamlets and villages.	Site and design these land uses to be compatible with existing settlement areas using landscaping, building design, planning controls and public consultation programs.
	Municipalities should undertake comprehensive studies regarding the need and demand for this land use type in the planning process.
	Consider the social impacts of this type of land use in the planning process.
<b>Change to Visual Characteristics of Landform</b>	
<i>Positive</i>	
Concentrated development reduces modification to the landform resources in rural areas.	
Within settlement areas visual character of landform can be improved through innovative site design and landscaping where this land use displaces other types of land uses that are visually unattractive (e.g. aggregate extraction, derelict land, heavy industrial uses, auto wrecker yards).	
<i>Negative</i>	
Extensive land grading and the introduction of incompatible building design can decrease visual variety of the landscape and destroy distinctive elements of the landscape. Because development is within settlement areas, the effects should be minimal.	Use compatible building design and landscaping techniques and planning controls to enhance visual character.
	Minimize changes to the basic topographic character of the area.
	Minimize grading of the area.
	Avoid and protect natural attributes of the site.
<b>NATURAL ENVIRONMENT</b>	
<b>Change in Air Quality</b>	
<i>Positive</i>	
Air quality is improved by residential and institutional uses displacing certain types of land use (e.g. intensive agriculture) that have negative impacts on air quality and climatic conditions.	

**TABLE B2**  
**OAK RIDGES MORaine**  
**URBAN USES IN HAMLETS AND VILLAGES**  
 (continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Dependence on automobiles is relieved by location in settlement area where many services and businesses are located.	
<i>Negative</i>	
Some air emissions impair air quality (e.g. vehicle exhausts, effects of home heating).	Consider effects on air quality when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. encourage public transit use and emission controls).
	Consider/support programs to minimize home heating emissions (e.g. energy-efficient homes).
	Encourage development practices and land use locations which minimize vegetation removal and unnecessary/damaging land modifications.
Land modifications and vegetation removal within settlement areas may affect microclimatic conditions (e.g. increased exposure to wind, reduced shade).	Consider effects on air quality when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. encourage public transit use and emission controls).
	Consider/support programs to minimize home heating emissions.
	Encourage development practices and land use locations which minimize vegetation removal and unnecessary/damaging land modifications.
Some dependence on the automobile for commuting to large urban centres for most day-to-day activities degrades regional air quality.	Consider effects on air quality when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. encourage public transit use and emission controls).
<b>Change in Potential for Flooding</b>	
<i>Positive</i>	
Concentrated settlement area facilitates communal storm water management systems.	



TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<i>Negative</i>	
Introduction of impermeable surfaces within settlement areas, and the regrading and compacting of soil can modify the hydrologic and hydrologic regime of an area. This can result in such negative impacts as increased storm water run-off and greater potential for flooding downstream. Concentration of settlement areas may reduce permeable surface area.	<p>Consider the implications of this type of land use on storm water run-off for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Minimize the use of impermeable surfaces.</p> <p>Aerate compacted soils where possible after construction.</p> <p>Use best management practices to minimize run-off efficiency.</p>
<b>Change in Potential for Erosion/Sedimentation</b>	
<i>Positive</i>	
Concentrated development reduces potential for erosion/sedimentation relative to dispersed rural development due primarily to the amount of landform alteration and land area required.	
Erosion and sedimentation may be reduced if this type of land use displaces a land use that has a high rate of erosion/sedimentation (e.g. intensive agriculture, poor land stewardship).	
<i>Negative</i>	
Introduction of impermeable surfaces within settlement areas, and the regrading and compacting of soil can modify the hydrologic and hydrologic regime of an area. This can result in increased erosion and sedimentation and increased sediment levels in surface water.	<p>Consider the implication of this type of land use on erosion/sedimentation for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Use development practices which minimize soil erosion (e.g. revegetation, protection of slopes, protection of watercourses with berms, hazard areas and soils that are susceptible to erosion).</p>
<b>Change to Surface Water Quality</b>	
<i>Positive</i>	
Surface water quality may be improved when this type of land use displaces a land use that negatively impacts water quality (e.g. heavy industry).	



# APPENDIX B

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<i>Negative</i>	
<p>The presence of this land use type within settlement areas introduces additional harmful or deleterious substances that may reduce the quality of surface water through:</p> <ul style="list-style-type: none"> <li>● introduction of pesticides and fertilizer;</li> <li>● introduction of pollutants from car exhausts and road salts;</li> <li>● introduction of pathogens and harmful chemicals from septic tank effluents;</li> <li>● introduction of contaminants from waste oils and other automotive fluids.</li> </ul>	<p>Consider the implications of this type of land use on quality of surface water for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Control use of pesticides, and fertilizers.</p> <p>Encourage recycle reuse programs.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Encourage use of public transit and car pooling.</p> <p>Ensure adequate septic systems are used in existing and new development. Use best management practices.</p> <p>Ensure best management practices for storm water run-off (e.g. communal systems, settling ponds).</p> <p>Avoid sensitive watercourses as defined by regional and Provincial agencies including the Conservation Authorities (e.g. cold water fisheries and habitat, kettle lakes).</p>
Change to Groundwater Quality	
<i>Positive</i>	
Groundwater quality may be improved when this type of land use displaces a land use that negatively impacts water quality (e.g. heavy industry).	

# APPENDIX B

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p><i>Negative</i></p> <p>The presence of this land use type within settlement areas introduces additional harmful or deleterious substances that may reduce the quality of groundwater through:</p> <ul style="list-style-type: none"> <li>● introduction of pesticides and fertilizers;</li> <li>● introduction of pollutants from car exhausts and road salts;</li> <li>● introduction of pathogens and harmful chemicals from septic tank effluents;</li> <li>● introduction of contaminants from waste oils and other automotive fluids.</li> </ul>	<p>Consider the implication of this type of land use on quality of groundwater for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Control use of pesticides and fertilizers.</p> <p>Encourage recycle/reuse programs.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Encourage use of public transit and car pooling.</p> <p>Ensure adequate septic systems are used in existing and new development. Use best management practices.</p> <p>Avoid highly permeable soils and other sensitive groundwater recharge areas.</p>
<p><b>Change in Quantity of Groundwater</b></p> <p><i>Negative</i></p> <p>Introduction of impermeable surfaces within settlement areas and the regrading and compacting of soil can modify the hydrogeologic and hydrologic regime of an area. This can result in reduced recharge capacity and reduced storage in groundwater.</p>	<p>Consider the effects on groundwater quantity of each individual application and the cumulative effects of this land use type.</p> <p>Minimize use of impermeable surfaces.</p> <p>Aerate compacted soils.</p> <p>Encourage vegetative plantings. These trap surface water and allow percolation into the soil.</p> <p>Use best management practices to minimize run-off efficiency.</p> <p>Consider the effects on groundwater quantity of each individual application and the cumulative effects of this land use type.</p> <p>Minimize groundwater removal through best management practices and efficient supplies.</p>
<p>The presence of this land use type within settlement areas may reduce groundwater supplies through removal of groundwater for domestic purposes in excess of the replacement capacity of the natural system.</p>	

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Baseflow may be reduced through decreased infiltration.	See practices above.
<b>Change to Soil Resources and Highly Permeable Soils</b>	
<i>Positive</i>	
Concentrated development reduces potential for loss of soil resources and highly permeable soils relative to dispersed rural development.	
Soil health and productivity can be improved where this land use displaces other types of land use that have degraded the soil profile (e.g. heavy industry).	
<i>Negative</i>	
The introduction of certain chemicals (e.g. pesticides and fertilizers) may degrade soil health.	Control use of pesticides and fertilizers.
Within settlement areas, the soil profile is disturbed to accommodate the introduction of buildings, structures and roads.	Use best management practices in soil conservation, rehabilitation and reuse.
Within settlement areas, soil structure can be degraded by soil compaction and land use activity.	Use best management practices in soil conservation, rehabilitation and reuse.
Productive soils within settlement areas are displaced by this type of land use and reuse of topsoil may not allow achievement of previous productivity.	Avoid highly productive soils as defined by the Ministry of Agriculture, Food and Rural Affairs.

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p>Highly permeable soils are important to the recharge capacity and water quality of aquifer systems. This type of land use may:</p> <ul style="list-style-type: none"> <li>cover permeable soils and reduce recharge capacity; and</li> <li>degrade ground water resources if located on or near highly permeable soils.</li> </ul>	<p>Minimize use of impermeable surfaces.</p> <p>Aerate compacted soils after construction.</p> <p>Avoid siting this land use on highly permeable soils.</p> <p>Use best management practices to minimize run-off efficiency.</p> <p>Control use of pesticides and fertilizers.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Ensure adequate septic systems are used in existing and new development. Use best management practices.</p> <p>Consider the effects on highly permeable soils (i.e., groundwater quantity and quality) of each individual application and the cumulative effects of this land use type.</p>
<b>Displacement or Disruption of Significant Natural Areas</b>	
<i>Positive</i>	
Concentrated development in settlement areas facilitates the protection of significant natural areas outside settlement areas, including less fragmentation of natural habitat.	
<i>Negative</i>	
Increases stress on significant natural areas within settlement areas which may be displaced to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid significant natural areas as defined by local, regional and provincial agencies including the Conservation Authorities.

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p>Within settlement areas, significant natural areas may be indirectly destroyed or degraded through:</p> <ul style="list-style-type: none"> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• fragmentation of natural habitat;</li> <li>• changes in micro climatological character;</li> <li>• increased contact with humans; and</li> <li>• introduction of non-native plant and animals species.</li> </ul>	<p>Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.</p> <p>Avoid fragmentation of significant natural areas.</p> <p>Encourage plantings in remaining green belt.</p> <p>Consider noise, dust and activity effects of adjacent land uses on significant natural areas in the planning process.</p> <p>Control the introduction of non-native plant and animal species into significant natural areas.</p>
<b>Displacement or Disruption to Woodlands</b>	
<i>Positive</i>	
Concentrated development reduces potential for displacement or disruption to woodlots outside of settlement areas relative to dispersed rural development.	
<i>Negative</i>	
Within settlement areas, small woodlands may be displaced to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid woodlands.
<p>Within settlement areas, small woodlands may be indirectly destroyed or degraded through:</p> <ul style="list-style-type: none"> <li>• construction measures that do not protect and enhance woodlands;</li> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• changes in micro climatological character; and</li> <li>• introduction of non-native plant and animal species.</li> </ul>	<p>Undertake best management practices to preserve and enhance woodlots and trees (e.g. protect hedgerows, revegetation, tree root protection, etc.).</p> <p>Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.</p> <p>Control the introduction of non-native plant and animal species into woodlands.</p>

# APPENDIX B

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Disruption to Watercourses and Lakes</b>	
<i>Positive</i>	
Concentrated development reduces potential for disruption to watercourses and lakes outside of settlement areas relative to dispersed rural development.	
<i>Negative</i>	
Within settlement areas, watercourses and lakes may be disrupted to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid watercourses and lakes including a buffer strip.
Within settlement areas, watercourses and lakes may be indirectly destroyed or degraded through: <ul style="list-style-type: none"> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• fragmentation of natural habitat;</li> <li>• changes in micro climatological character;</li> <li>• increased contact with humans; and</li> <li>• introduction of non-native plant and animals species.</li> </ul>	<p>Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.</p> <p>Undertake comprehensive studies of the watercourses and lakes for hydrogeological and hydrological effects prior to permitting development.</p>
<b>Disruption to Natural Corridors/Open Space Linkages</b>	
<i>Positive</i>	
Concentrated development reduces potential for disruption to natural corridors/open space linkages outside of settlement areas relative to dispersed rural development.	
<i>Negative</i>	
Within settlement areas, this type of land use may further fragment natural corridors and open space linkages. This disruption may threaten the ecological integrity of the natural system. Fragmentation may result from direct displacement of natural areas or disruption as noted above.	<p>Avoid natural corridors/open space linkages.</p> <p>Demonstrate that planned land use will protect and enhance natural corridors/open space linkage through avoidance and best management practices for off-site disruption (e.g. ground, surface water, air quality and activity effects such as noise).</p>

# APPENDIX B

TABLE B2  
OAK RIDGES MORaine  
URBAN USES IN HAMLETS AND VILLAGES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Change in Use of Non-Renewable Resources	
<i>Positive</i>	
This type of land use requires less reliance on automobile transportation than dispersed rural type land use with resulting lower use of energy (and associated air quality degradation from transportation emissions).	
GTA Urban Structures Concepts study showed that the nodal land use concept was more efficient and effective in providing human services (than spread land use) which may also decrease use of non-renewable resources.	





**TABLE B3**  
**OAK RIDGES MORaine**  
**URBAN USES IN TOWNS AND CITIES**

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>ECONOMICS</b>	
<b>Disruption and Displacement of Agricultural Activities</b>	
<i>Negative</i>	
May displace agricultural land and businesses on land already located within towns and cities, so effects should be minimal.	Avoid development (including trailer parks and golf courses) on valuable agricultural land according to the Ministry of Agriculture, Food and Rural Affairs Foodland Guidelines.
	Promote the recognition of agricultural land/businesses as an important resource and business sector.
May reduce economic viability of adjacent agriculture where it creates conflicts with nearby farm operations (trespass on agricultural land, vandalism).	Plan for/permit this type of land use where it will not conflict with present or future agricultural operations.
May fragment farm operations and reduce economic viability of adjacent farms.	Consider the fragmentation of agricultural operations when planning for/permitting this land use.
Increases land speculation in surrounding agricultural areas and raises uncertainty about future agricultural activities.	Adherence with Foodland Guidelines.
<b>Change to Level of Municipal Service</b>	
<i>Positive</i>	
Generates increased municipal revenues through increased municipal assessment rates relative to most land uses displaced such as agriculture.	
Enables centralized and therefore more viable, convenient and cost effective public services including public transit.	
<i>Negative</i>	
Generates costs to the municipality and school boards in the provision of social and municipal services (e.g. policing, fire protection, busing, library, garbage pick-up), but new development may share existing services in towns and cities. Costs of expanded hard services may also be generated.	Study the true costs to municipalities and school boards of this type of land use on a general basis. Consider the true costs to municipalities and school boards when planning for and permitting this land use.

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
May be increased costs to municipality for local transportation infrastructure but existing settlement infrastructure can be used and expanded.	Study the true transportation costs to municipalities and school boards of this type of land use on a general basis.
	Consider the true transportation costs to municipalities and school boards when planning for and permitting this land use.
<b>Change to Existing and Future Business Opportunities and Jobs</b>	
<i>Positive</i>	
Generates opportunities/jobs in the construction industry including spin-off benefits to support industries (e.g. wood products industry, landscape services, real estate, etc.).	
Generates long term opportunities/jobs related to upkeep and maintenance of land (e.g. lawn care, home improvement, home repair, etc.).	
Generates opportunities/jobs in support sectors of the economy (e.g. local retail opportunities).	
<i>Negative</i>	
Causes unemployment and loss of business to farmers, farm equipment dealers, grain/cattle shipper, etc.	
<b>Effect on Resource Extraction</b>	
<i>Positive</i>	
Concentrated development reduces potential for displacement or disruption to aggregate resources within settlement areas relative to dispersed rural development.	
<i>Negative</i>	
May displace economic opportunities from the resource extraction businesses displaced but low likelihood because land already within towns and cities.	Avoid location of this type of land use on valuable aggregate resources according to the Ministry of Natural Resources legislation, policies and guidelines.

# APPENDIX B

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
SOCIAL ENVIRONMENT	
Change in Accessibility to Recreation Areas	
<i>Positive</i>	
Retains rural areas for open space recreation opportunities.	
<i>Negative</i>	
Proximity to natural areas with opportunities for outdoor/recreation experience is not enhanced.	Undertake comprehensive tourism and recreation demand and needs studies.
Places a higher demand on public open space in urban areas.	Undertake comprehensive recreation demand and needs studies and consider environmental effects of recreation use.
Satisfaction of Housing Demand	
<i>Positive</i>	
Satisfies public demand for housing.	
Does not provide rural type of housing perceived as an attractive alternative to housing in settlement areas by a certain segment of the population (i.e., some believe that residing in a rural or small community is healthier and more socially enriching than more urbanized alternatives).	Undertake community education programs on the economic and environmental advantages of living in settlement areas.
	Provide some dispersed rural residential housing opportunities.

# APPENDIX B

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Change to Community Character, Cohesion, Structure and Stability	
<i>Positive</i>	
Community character of hamlets/villages and rural areas can be maintained.	
<i>Negative</i>	
Increased size and character of town or city may not be compatible with the existing settlement areas.	Site and design these land uses to be compatible with existing towns and cities using landscaping, building design, planning controls and public consultation programs.
	Municipalities should undertake comprehensive studies regarding the need and demand for this land use type in the planning process.
	Consider the social impacts of this type of land use in the planning process.
Change to Visual Characteristics of Landform	
<i>Positive</i>	
Concentrated development reduces modification to the landform resources in rural areas.	
Within towns and cities, visual character of landform can be improved through innovative site design and landscaping where this land use displaces other types of land uses that are visually unattractive (e.g. aggregate extraction, derelict land, heavy industrial uses).	
<i>Negative</i>	
Extensive land grading and the introduction of incompatible building design can decrease visual variety of the landscape and destroy distinctive elements of the landscape. Because development is within cities and towns, the effects should be minimal.	Use compatible building design and landscaping techniques and planning controls to enhance visual character.
	Minimize changes to the basic topographic character of the area.
	Minimize grading of the area.
	Avoid and protect natural attributes of the site.

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
NATURAL ENVIRONMENT	
Change in Air Quality	
<i>Positive</i>	
Air quality and climatic conditions are improved by residential and institutional uses displacing certain types of land use (e.g. heavy industry) that have negative impacts on air quality and climatic conditions.	
Dependence on automobiles is relieved by location in towns and cities where many services and businesses are located and public transit is available.	
<i>Negative</i>	
Air emissions impair air quality (e.g. vehicle exhausts, effects of home heating).	Consider effects on air quality when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. encourage public transit use and emission controls).
	Consider/support programs to minimize home heating emissions.
	Encourage development practices such as eco-planning and land use locations which minimize vegetation removal and unnecessary/damaging land modifications.
Land modifications and vegetation removal within settlement areas may affect microclimatic conditions (e.g. increased exposure to wind, reduced shade).	Consider effects on air quality when undertaking comprehensive land use planning.
	Consider programs to reduce vehicle exhaust (e.g. encourage public transit use and emission controls).
	Consider/support programs to minimize home heating emissions.
	Encourage development practices and land use locations which minimize vegetation removal and unnecessary/damaging land modifications.

# APPENDIX B

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Change in Potential for Flooding</b>	
<i>Positive</i>	
Connection to full services reduces potential for storm water run-off effects.	
<i>Negative</i>	
Introduction of impermeable surfaces within towns and cities, and the regrading and compacting of soil can modify the hydrogeologic and hydrologic regime of an area. This can result in such negative impacts as increased storm water run-off and greater potential for flooding downstream. Expansion of development into flood plains results in higher flood levels and loss of buildings, structures, etc.	<p>Consider the implications of this type of land use on storm water run-off for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Minimize the use of impermeable surfaces where not necessary.</p> <p>Use naturalized storm water ponds.</p> <p>Revegetate derelict areas.</p> <p>Use best management practices to minimize run-off efficiency.</p> <p>Avoid development in the flood plain as per the Flood Plain Planning Policy Statement.</p>
<b>Change in Potential for Erosion/Sedimentation</b>	
<i>Positive</i>	
Concentrated development reduces potential for erosion/sedimentation relative to dispersed rural development.	
Erosion and sedimentation may be reduced if this type of land use displaces a land use that has a high rate of erosion/sedimentation.	



TABLE B3  
OAK RIDGES MORAINÉ  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p><i>Negative</i></p> <p>Introduction of impermeable surfaces within towns and cities, and the regrading and compacting of soil can modify the hydrologic and hydrologic regime of an area. This can result in increased erosion and sedimentation and increased sediment levels in surface water.</p>	<p>Consider the implication of this type of land use on erosion/sedimentation for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Use development practices which minimize soil erosion (e.g. revegetation, protection of slopes, protection of watercourses with berms, avoidance of hazard lands and soils that are highly susceptible to erosion).</p>
<p><b>Change to Surface Water Quality</b></p>	
<p><i>Positive</i></p> <p>Concentrated development reduces potential for change to surface water quality relative to dispersed rural development.</p>	
<p>Connection to storm water treatment services will reduce potential for surface water quality impairment from septic tank effluents.</p>	
<p>Surface water quality may be improved when this type of land use displaces a land use that negatively impacts water quality (e.g. heavy industry).</p>	

# APPENDIX B

**TABLE B3**  
**OAK RIDGES MORaine**  
**URBAN USES IN TOWNS AND CITIES**  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p><i>Negative</i></p> <p>The presence of this land use type within towns and cities introduces additional harmful or deleterious substances that may reduce the quality of surface water through:</p> <ul style="list-style-type: none"> <li>● introduction of pesticides, herbicides and fertilizer;</li> <li>● introduction of pollutants from car exhausts and road salts; and</li> <li>● introduction of pathogens and harmful chemicals from sewage treatment plants that are below standard.</li> </ul>	<p>Consider the implications of this type of land use on quality of surface water for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Control use of pesticides, herbicides and fertilizers.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Encourage use of public transit.</p> <p>Monitor water treatment services used in existing and new development. Use best management practices for all services (e.g. for storm water use, settling ponds, partial treatment of retained water, separated sewers).</p> <p>Upgrading or improvements to existing systems will improve water quality.</p> <p>Avoid sensitive watercourses as defined by regional and Provincial agencies including the Conservation Authorities (e.g. cold water fisheries and habitat, kettle lakes).</p>
<p><b>Change to Groundwater Quality</b></p> <p><i>Positive</i></p> <p>Groundwater quality may be improved when this type of land use displaces a land use that negatively impacts water quality (e.g. heavy industry).</p> <p>Connection to full water treatment services will reduce potential for negative groundwater quality effects from substandard septic systems.</p>	

**TABLE B3**  
**OAK RIDGES MORaine**  
**URBAN USES IN TOWNS AND CITIES**  
 (continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<i>Negative</i>	
<p>The presence of this land use type within towns and cities introduces additional harmful or deleterious substances that may reduce the quality of groundwater through:</p> <ul style="list-style-type: none"> <li>● introduction of pesticides, herbicides and fertilizers;</li> <li>● introduction of pollutants from car exhausts and road salts; and</li> <li>● introduction of pathogens and harmful chemicals from sewage treatment plants that are below standard.</li> </ul>	<p>Consider the implication of this type of land use on quality of groundwater for each individual proposed development and the cumulative effects of this type of land use.</p> <p>Control use of pesticides, herbicides and fertilizers.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Encourage use of public transit.</p> <p>Monitor water treatment services used in existing and new development. Use best management practices for full services.</p> <p>Ensure sewage treatment capacity is to MOEE specifications.</p> <p>Avoid groundwater recharge areas.</p>
<b>Change in Quantity of Groundwater</b>	
<i>Positive</i>	
Concentrated development on full services reduces potential for change in quantity of groundwater relative to dispersed rural development.	
<i>Negative</i>	
Introduction of impermeable surfaces within towns and cities and the regrading and compacting of soil can modify the hydrologic and hydrologic regime of an area. This can result in reduced recharge capacity of groundwater.	<p>Consider the effects on groundwater quantity of each individual application and the cumulative effects of this land use type.</p> <p>Minimize the use of impermeable surfaces (asphalt, concrete).</p> <p>Avoid siting this land use on highly permeable soils.</p> <p>Use best management practices to minimize run-off efficiency.</p>

TABLE B3  
OAK RIDGES MORaine.  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
The presence of this land use type within towns and cities may reduce groundwater supplies through removal of groundwater for domestic purposes in excess of the replacement capacity of the natural system if water supply is from groundwater and not a major lake (i.e. Lake Ontario).	Water conservation methods (i.e. water saving devices, off-peak lawn-watering, landscaping alternatives).  Investigate inter-regional water supply sources.
Baseflow may be reduced through decreased infiltration.	See practices above.
<b>Change to Soil Resources and Highly Permeable Soils</b>	
<i>Positive</i>	
Soil health and productivity can be improved where this land use displaces other types of land use that have degraded the soil profile (e.g. heavy industry).	
<i>Negative</i>	
The introduction of certain chemicals (e.g. pesticides, fertilizers and oils) may degrade soil health.	Control use of pesticides and fertilizers.
Within towns and cities, the soil profile is disturbed due to the construction of buildings, structures and roads but these effects may have occurred previously.	Ensure proper collection of automobile products (oil, glycol, gasoline).  Use best management practices in soil conservation, rehabilitation and reuse.
Within towns and cities, soil structure can be degraded by soil compaction and land use activity but effects may have occurred previously.	Use best management practices in soil conservation, rehabilitation and reuse.  Education of residents to practice soil-conscious landscaping and organic gardening that reduce use of fertilizers.
Productive soils within towns and cities are displaced by this type of land use and reuse of topsoil may not allow achievement of previous productivity but effects may have occurred previously.	Avoid highly productive soil areas as defined by the Ministry of Agriculture, Food and Rural Affairs.

**TABLE B3**  
**OAK RIDGES MORaine**  
**URBAN USES IN TOWNS AND CITIES**  
 (continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p>Highly permeable soils are important to the recharge capacity and water quality of aquifer systems. This type of land use may:</p> <ul style="list-style-type: none"> <li>● cover permeable soils and reduce recharge capacity; and</li> <li>● degrade groundwater resources if located on or near highly permeable soils.</li> </ul>	<p>Minimize development of impermeable surfaces and compacting of soils.</p> <p>Avoid siting this land use on highly permeable soils.</p> <p>Use best management practices to minimize run-off efficiency.</p> <p>Monitor and attempt to reduce use of road salts.</p> <p>Ensure adequate septic systems are used in existing and new development. Use best management practices.</p> <p>Consider the effects on highly permeable soils (i.e., groundwater quantity and quality) of each individual application and the cumulative effects of this land use type.</p>
<b>Displacement or Disruption of Significant Natural Areas</b>	
<i>Positive</i>	
Concentrated development in towns and cities facilitates the protection of significant natural areas outside settlement areas, including less fragmentation of natural habitat.	
<i>Negative</i>	
Increases stress on any remaining significant natural areas within towns and cities which may be displaced to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid significant natural areas as defined by local, regional and provincial agencies including the Conservation Authorities.

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
<p>Within towns and cities, any remaining significant natural areas may be indirectly destroyed or degraded through:</p> <ul style="list-style-type: none"> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• fragmentation of natural habitat;</li> <li>• changes in micro climatological character;</li> <li>• increased contact with humans; and</li> <li>• introduction of non-native plant and animals species.</li> </ul>	<p>Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.</p> <p>Avoid fragmentation of significant natural areas.</p> <p>Consider incorporation/maintenance of natural corridors in development plans.</p> <p>Consider noise, dust and activity effects of adjacent land uses on significant natural areas in the planning process and suggest best management plans.</p> <p>Control the introduction of non-native plant and animal species into significant natural areas.</p>
<b>Displacement or Disruption to Woodlands</b>	
<i>Positive</i>	
Concentrated development reduces potential for displacement or disruption to woodlots outside of settlement areas relative to dispersed rural development.	
<i>Negative</i>	
Within towns and cities, any remaining small woodlots may be displaced to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.	Avoid woodlands.
Within towns and cities, any remaining small woodlands may be indirectly destroyed or degraded through:	Incorporate woodlands into parks, greenbelt, etc.
<ul style="list-style-type: none"> <li>• construction measures that do not protect and enhance woodlands;</li> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• changes in micro climatological character; and</li> <li>• introduction of non-native plant and animal species.</li> </ul>	<p>Undertake best management practices to preserve and enhance woodlots and trees (e.g. protect hedgerows, revegetation, tree root protection, etc.).</p> <p>Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.</p> <p>Control the introduction of non-native plant and animal species into woodlands.</p>



# APPENDIX B

**TABLE B3**  
**OAK RIDGES MORaine**  
**URBAN USES IN TOWNS AND CITIES**  
(continued)

CRITERIA / EFFECTS		METHODS TO OVERCOME NEGATIVE EFFECTS
<b>Disruption to Watercourses and Lakes</b>		
<i>Positive</i>		
Concentrated development reduces potential for disruption to watercourses and lakes outside of settlement areas relative to dispersed rural development.		
<i>Negative</i>		
Within towns and cities, watercourses and lakes may be impacted to accommodate buildings, structures, roads and associated regrading and landscaping of the lot.		Avoid watercourses and lakes including a buffer strip.
Within towns and cities, watercourses and lakes may be indirectly destroyed or degraded through:		Undertake the measures suggested with respect to air quality, ground and surface water quality and quantity, soil resources and erosion/sedimentation effects.
<ul style="list-style-type: none"> <li>• reductions in air, water and soil quality;</li> <li>• changes to the hydrogeological regime;</li> <li>• off-site erosion and sedimentation;</li> <li>• fragmentation of natural habitat;</li> <li>• changes in micro climatological character;</li> <li>• increased contact with humans; and</li> <li>• introduction of non-native plant and animals species.</li> </ul>		Undertake comprehensive studies of the watercourses and lakes for hydrogeological and hydrological effects prior to permitting development.
<b>Disruption to Natural Corridors/Open Space Linkages</b>		
<i>Positive</i>		
Concentrated development reduces potential for disruption to natural corridors/open space linkages outside of settlement areas relative to dispersed rural development.		
<i>Negative</i>		
Within towns and cities, this type of land use may further fragment natural corridors and open space linkages. This disruption may threaten the ecological integrity of the natural system. Fragmentation may result from direct displacement of natural areas or disruption as noted above.		<p>Avoid natural corridors/open space linkages.</p> <p>Demonstrate that planned land use will protect and enhance natural corridors/open space linkage through avoidance and best management practices for off-site disruption (e.g. ground, surface water, air quality and activity effects such as noise).</p>



# APPENDIX B

TABLE B3  
OAK RIDGES MORaine  
URBAN USES IN TOWNS AND CITIES  
(continued)

CRITERIA / EFFECTS	METHODS TO OVERCOME NEGATIVE EFFECTS
Change in Use of Non-Renewable Resources	
<i>Positive</i>	
This type of land use requires less reliance on automobile transportation than dispersed rural type land use with resulting lower use of energy (and associated air quality degradation from transportation emissions).	
GTA Urban Structures Concepts study showed that the nodal land use concept was more efficient and effective in providing human services (than spread land use) which may also decrease use of non-renewable resources.	

## **APPENDIX C**

### **Legislation, Policies and Guidelines Affecting Land Uses in the Oak Ridges Moraine**



**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Aggregate Resources Act	Provides for the management of the aggregate resources of Ontario, controls and regulates aggregate operations on Crown land and private lands.	Ministry of Natural Resources	Applies to numerous aggregate deposits and extraction operations in the Moraine.  A licence is required to create or expand an extraction operation.  A wayside permit is required for temporary use of aggregate for road construction project.	Requires the rehabilitation of land from which aggregate has been excavated and the minimizing of adverse impacts on the environment from aggregate operations.  Must comply to municipal zoning regulations.  Requires site planning and rehabilitation.  Places emphasis on progress rehabilitation.
Beds of Navigable Waters Act	Protects navigable waters for public use.  Provides the background for defining whether a watercourse is deemed navigable (under public ownership) or navigable (privately owned).	Ministry of Natural Resources  The bed of any navigable water is Crown land.  Beaches are not necessarily crown land, depending on the patents. The Province controls the bed, the federal government controls the surface.	Applies to the use of navigable beds for such works as: dams, wharfs, docks, tunnels, pipes or the placing or dumping of fill.  The Crown may sell, lease or rent a navigable bed for occupancy.	An application for the use of navigable river beds is made under the <i>Public Lands Act</i> . Any alteration to the bed may require an application through the <i>Lakes and Rivers Improvement Act</i> .
Building Code Act	Provides the authority for the establishment and enforcement of an Ontario Building Code.	Ministry of Housing  Enforced by the Council of each municipality.	Applies to the construction, alteration or demolition of buildings.	

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Conservation Authorities Act	<p>Provides for the establishment of Conservation Authorities whose members shall be appointed by the councils of participating municipalities.</p> <p>Conservation Authorities are responsible for:</p> <ul style="list-style-type: none"> <li>the conservation, restoration development and management of the natural resources, other than gas oil, coal and minerals, within jurisdiction of a Conservation Authority;</li> <li>the prevention of floods, erosion and pollution, and the adverse effects associated with these problems by controlling the flow of surface waters, the regulation of building construction below the regional flood level and the dumping of fill, and</li> <li>the acquisition, management and making of agreements within the watershed required for the purposes of accomplishing authority objectives as outlined above.</li> </ul>	Conservation Authorities	<p>Applies to the use of water; the diversion of watercourses, the construction of buildings or structures, the placing or dumping of fill in or from rivers, streams, inland lakes, ponds, swamps and natural or artificially constructed depressions in rivers or streams, or areas susceptible to flooding during a regional storm.</p> <p>Conservation Authority through regulation may control the filling or construction within floodplains.</p>	<p>A permit is required from the local CA under its Fill, Construction and Alteration to Waterways regulation for any work which:</p> <ul style="list-style-type: none"> <li>takes place within designated fill lines</li> <li>takes place within any area subject to flooding under conditions produced by the defined regulatory flood</li> <li>straighten, change, direct or interfere in any way with the existing channel of a watercourse</li> </ul>
Conservation Land Act, 1988	The Minister may with Cabinet approval establish programs to encourage conservation and may finance these programs.	Ministry of Natural Resources	Privately owned wetlands, areas of natural or scientific interest (ANSIs), the Niagara Escarpment Planning Area, non-revenue producing Conservation Authority lands, and other conservation lands owned by non-profit organizations.	<p>The Conservation Land Tax Reduction Program, established under this Act allows a 100% tax rebate on taxes paid since January 1987 to owners of identified conservation lands.</p> <p>Approximately 15% of the eligible owners apply for the rebate. Ensures good stewardship of natural heritage features.</p>

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Drainage Act	Provides for the establishment of agricultural and municipal drains.  Regulates construction and improvement of drainage works.  Provides for preparation and review of development plans for drainage works.  Provides for environmental appraisal of the effects of drainage works.	Ministry of Agriculture, Food and Rural Affairs	Applies to drainage works within the Moraine.	Circulation of applications, engineer reports, etc. of drainage works to Conservation Authority, Ministry of the Environment and Energy, and Ministry of Natural Resources. Modifications to the proposals may be requested.  An assessment of the costs and benefits of the drainage works are to be estimated for the affected properties.
Endangered Species Act	Provides for the protection of species of flora and fauna and their habitats declared by the regulations to be threatened by extinction.	Ministry of Natural Resources	Applies to areas which provide habitat for species of flora and fauna threatened with extinction.	No persons shall willingly kill, injure, or interfere with the habitat of any species threatened by extinction.  Any person who contravenes this Act is guilty of an offense.
Environmental Assessment Act (RSO, 1980)	Provides for the protection, conservation and wise management of the environment. The broad definition of environment includes air land, water and the interrelationships between them.  Establishes a process for evaluating the impact of undertakings on the environment, which requires the consideration of alternatives to and alternative methods of carrying out undertakings.	Ministry of the Environment and Energy	Applies to an enterprise, activity or proposal carried out by a public body, or a major private commercial business or enterprise or activity which is designated by the Lieutenant, Governor in Council in regulation.  It generally does not apply to works conducted by private landowners	Approval of the Environmental Assessment is required before any other approval under provincial or municipal statutes or by-laws will be granted.

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Environmental Protection Act	<p>Provides for protection and conservation of the natural environment.</p> <p>Regulates operation of waste management systems.</p> <p>Indicates standards for environmental quality components.</p> <p>The environment is defined as air, land, water or any combination thereof of the Province of Ontario.</p>	Ministry of the Environment and Energy	Used primarily to protect against pollution by contaminants.	<p>Approvals required for septic tanks (delegated to local health units).</p> <p>The Ministry of the Environment and Energy can issue certificates of approval, program approvals, control orders, etc., depending on the work and the nature of the discharge.</p> <p>A Certificate of Approval is required for the methods or devices to be used to control or prevent the emission or drainage of any contaminant other than water (includes noise as a contaminant).</p>
Game and Fish Act	Provides for the management, preservation and rehabilitation of fish and wildlife resources and habitat.	Ministry of Natural Resources	Fish and wildlife habitats.	<p>Prevents the disturbance to fish and wildlife including the possession of eggs of game birds, the removal of beaver dams or habitat of fur-bearing animals.</p> <p>A license is required prior to molesting, damaging or destroying a beaver dam or place of habitat of a fur-bearing animal (with the exception of a fox or skunk).</p> <p>No person shall take, destroy or possess the eggs or nests of any game birds without written authority from the Minister.</p>
Lakes and Rivers Improvement Act	<p>Ensures the suitability of location and the nature of improvements in lakes and rivers including safe maintenance and operation.</p> <p>Designated to minimize the risk of flooding or other damage to public or private land and ensures that the quantity and quality of water passing down the river system is not greatly affected by modifications or changes made in a lake or river.</p>	Ministry of Natural Resources	Applies to projects undertaken in lakes and rivers, and includes docks, groynes, seawalls, breakwaters, etc.	<p>Approval is required from the District MNR prior to construction, alteration or deposition in a lake, river or shoreline.</p> <p>An application form must be completed and sent to MNR with a detailed sketch of the proposed plan and its location.</p>



**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Lakes and Rivers Improvement Act (continued)	Provides for the use, management and perpetuation of the river and wildlife and other natural resources dependent on such waters.			Sufficient detail, such as a pre-feasibility engineering study must be submitted at this stage in order to determine the scope and extent of the proposed work. An environmental report that could be requested must be submitted before approval will be given.
Municipal Act	Provides municipalities with various powers for administration of their mandate.	Ministry of Municipal Affairs	Provides municipalities the right to pass by-laws for a number of purposes.  By-laws may be passed to restrict certain uses of the moraine.	Gives municipalities the power to pass by-laws for many purposes (e.g., creating, maintaining, operation and renting of wharves, piers and docks, collection, removal and disposal of garbage, etc.  By-laws may be passed that any person who contravenes the by-laws is guilty of an offense.
Ontario Heritage Act	Responsible for the preservation, conservation and protection of the heritage of Ontario.  Provides for the establishment of the Ontario Heritage Foundation.  Controls demolition of historically significant building by designating buildings under Part IV of the Ontario Heritage Act.	Ministry of Culture, Tourism and Recreation  Municipalities can designate through Official Plans Heritage Conservation Districts which would protect against demolitions, alterations, removals or erections.	If an area is designated as a heritage property under the Act, any alteration that may affect the attributes of the property which make it a heritage property must be approved by municipal council.	Properties designated by a municipality require Council approval prior to alterations or demolitions.  Council may acquire or expropriate the properties or make grants for alterations, acquire easements or enter into covenants.  There are no specific applications or approvals required under the <i>Heritage Act</i> . The required analysis is included in the environmental assessment prepared under the <i>EA Act</i> .  The Ontario Heritage Foundation has been established for the purposes of accepting easements and gifts of property. This serves to protect natural heritage features.

LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Ontario Water Resources Act	<p>Main legislative instrument for regulating water quality.</p> <p>Deals with municipal and industrial sewage and water supply systems:</p> <ul style="list-style-type: none"> <li>Prohibits the discharge or deposit of any material of any kind into water that may impair the quality of the water in any well, lake, river, pond, spring, stream, reservoir or other watercourse.</li> <li>MOEE given authority to ensure that dredged material is disposed of so that it does not pollute water.</li> </ul>	Ministry of the Environment and Energy	<p>Applies to any activity requiring the taking of water in excess of 50,000 litres per day</p>	<p>Water or sewer works must be approved by the Approvals Branch of the Ministry of the Environment and Energy.</p> <p>MOEE reviews required for:</p> <ul style="list-style-type: none"> <li>all open water disposal of dredged material must be tested under the <i>Open Water Disposal Guidelines</i></li> </ul> <p>MOEE approvals required for:</p> <ul style="list-style-type: none"> <li>all hydraulic dredging (<i>Permit to Take Water and Certificate of Approval</i>)</li> <li>all marine construction involving the taking or storage of water (Certificate of Approval)</li> <li>marine activities in designated water supply areas.</li> </ul>
Parks Assistance Act	<p>Provides for granting of funds to municipalities for acquisition and development of land for an approved park or for conversion of an existing provincial or public park into an approved park.</p> <p>Only parks providing facilities for picnicking and overnight tent and trailer camping or those that will develop a natural area (i.e. beach) for intensive recreation will be approved for assistance under this Act.</p>	Ministry of Natural Resources	<p>Applies to the establishment of an approved park in any municipality.</p> <p>Applicants wishing assistance under this Act must file plans of specifications for the proposed park with the Minister.</p>	<p>Parks established under this Act must be maintained and operated for the use and enjoyment of the public in such a manner as will be complementary to the use and enjoyment of provincial parks.</p>

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Planning Act	<p>The purpose is to control the use and development of land, buildings and structures in Ontario.</p> <p>Makes provision for the Council of any municipality to prepare an Official Plan.</p> <p>Where an Official Plan is in effect, no public work shall be constructed an no-by law passed for any purposes that do not conform to the Official Plan.</p>	<p>Ministry of Municipal Affairs</p> <p>The Ministry of Natural Resources is consulted and has the opportunity to recommend conditions upon development in order to protect natural resources such as fisheries and wetlands.</p>	<p>Permits the preparation of Official Plans in municipalities within the Moraine.</p>	<p>Official Plans provide guidance for the physical development of a municipality. Zoning by-laws may be passed by council to prohibit the use of land or the use and erection of buildings or structures for the purposes set out in the by-law.</p> <p>Specific areas may be designated as "site control areas" where conditions of approval on construction are required. Conditions of approval may relate to grading or alteration, sewage facilities, protection of hedges, etc.</p>
Public Lands Act	<p>Provides for the regulation, administration, management, use, sale and disposition of public lands and forests under the charge of the Ministry of Natural Resources.</p> <p>Provides that no person shall deposit material on public land or water without written authorization of the MNR.</p>	<p>Ministry of Natural Resources</p> <p>The Minister and any municipality may enter into agreements respecting the control and management by the municipality of any public lands comprised of beaches or lands covered with water.</p>	<p>Applies to Crown Lands within the Oak Ridges Moraine.</p>	<p>No structure or other matter may be situated on Crown Lands without a work permit from the Minister or authorized officer.</p> <p>A completed application with a sketch of the proposed project must be submitted to MNR for review and approval.</p> <p>A license of occupation is issued by the Minister to permit the occupation of public lands (including the lake bed).</p>
Topsoil Preservation Act	<p>Provides methods by which topsoil will be preserved.</p>	<p>Ministry of Agriculture, Food and Rural Affairs</p>	<p>Applies to areas of topsoil extraction.</p>	<p>The councils of municipalities may pass by-laws for the following: regulating and issuing permits for the removal of topsoil, requiring the rehabilitation of lands from which topsoil and the procedures and standards by which this should be done.</p>

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

PROVINCIAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Trees Act	Provides for the management and protection of forest resources.  Provides for by-laws to be passed to regulated the destruction of trees by cutting, burning or other means.	Ministry of Natural Resources	Municipalities may pass by-laws pertaining to the cutting or destruction of trees in the municipality.  Trees may be specified to stabilize slopes and prevent erosion (e.g. shorelines).  A municipality receives written approval of Minister or Council to pass by-laws.  A by-law amendment may be required to remove trees protected in the by-law.	There are inadequacies in the effectiveness in protecting privately owned woodlots: <ul style="list-style-type: none"><li>• lack of effective controls such as work permits or "stop work" orders</li><li>• exemptions in the Act are broad enough to permit landowners to avoid complying with by-laws</li><li>• existing penalties are not an effective deterrent</li></ul>
Wilderness Areas Act	Provides for designation or acquisition of land for wilderness areas.  Provides for the preservation of the natural environment and for the retention of historical, aesthetic, scientific and recreational value.	Ministry of Natural Resources	Special protection measures may be outlined for wilderness areas in the moraine.	Provision may be made for the care, preservation, improvement, control and management of wilderness areas, prohibition and regulation.
Woodlands Improvement Act	Provides for planting of nursery stock or improvement of woodlands within forest management areas.	Ministry of Natural Resources	Owners of land suitable for forestry practices may enter into agreements for the management of forests in the moraines.	Cutting within an area where an agreement exists must be in accordance with a management program drawn up at the time of the agreement.

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

FEDERAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Canadian Environmental Protection Act	The purpose is to promote the protection of the Canadian environment from toxic substances and promote the protection of human health and safety as a national concern.	Environment Canada	Permits the regulation of substances that are threatening or may threaten the environment or human life or health.	Provides for the establishment of environmental quality monitoring stations, the publication of data, the formulation of data, codes of practice, etc.  Regulations may be introduced applicable to the works, undertakings and lands of federal departments and agencies and Crown corporations.
Canada Waters Act	Provides for federal-provincial water resources management programs.	Environment Canada		Regulates waste disposal into waters and provides for preparation and review of water quality management plans.
Canada Wildlife Act	Provides for conservation of wildlife and wildlife habitat. Provides for acquisition or designation of public lands for wildlife research, conservation, or interpretation.  The Federal Government may initiate conferences and meetings with respect to wildlife research, conservation and interpretation, undertake programs for wildlife research and investigation, establish advisory committees; coordinate and implement wildlife policies and program. The Minister may enter into agreements with any Province to undertake wildlife research, conservation and interpretation programs and measures.	Environment Canada	May provide for the acquisition or designation of public lands for wildlife research, conservation or interpretation.	In any designated National Wildlife area, no person shall: <ul style="list-style-type: none"><li>• damage vegetation</li><li>• disturb any soil, sand or gravel</li><li>• use any vehicles</li><li>• dump waste material</li><li>• carry on a commercial or industrial activity</li></ul>
Federal Environmental Assessment and Review Process	A self-assessment process where the federal department involved with a project is the decision-making authority and is responsible to ensure that all environmental implications are considered before a new development starts.	Federal Environmental Assessment and Review Office	Applies to federal projects undertaken in the Moraine.	Applies to any project that may have an environmental effect on an area of Federal responsibility (i.e. fisheries, National Park, etc.) or to which the Federal government makes a financial contribution, is located on Federal property, or that is being undertaken directly by a Federal department.

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

FEDERAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Fisheries Act	<p>Conservation and preservation of fisheries.</p> <p>Provides that no person shall carry on any work or undertaking that results in the harmful alternation, disruption or destruction of fish habitat.</p> <p>Fish habitat is defined as:</p> <p>spawning grounds, food supply and migration areas on which fish depend directly or indirectly for their life processes.</p> <p>Regulates the deposition of any deleterious substance in water bodies frequented by fish.</p> <p>Provides for construction of fishways on watercourses where passage is impeded or blocked by man-made obstructions or works.</p> <p>Provides for designation of waterways as fish propagation areas.</p>	<p>Department of Fisheries and Oceans/Ministry of Natural Resources.</p> <p>A process for reviewing proposals which may involve the destruction of habitat has been developed jointly by Fisheries and Oceans and Ministry of Natural Resources. Both agencies should be consulted for projects relating to habitat, safe upstream/downstream passage, minimum flow levels and fish screens.</p>	<p>Activities which occur near or in water and have the potential to harm or disturb fish habitat.</p>	<p>For any proposed undertaking that results in or is likely to result in the deposit of a deleterious substance or the alternation, disruption or destruction of fish habitat. This may include the covering of fish habitat by a breakwater or groyne, increased suspended sediment during construction, interference with migration routes from breakwater construction and alternation to weed beds.</p> <p>Destroying or altering fish habitat is a Federal offence and is subject to fines and/or imprisonment.</p>
Migratory Birds Convention Act	<p>Provides for protection of migratory birds from capture or killing.</p> <p>Regulates hunting of migratory game and non-game migratory birds.</p> <p>Provides for protection of migratory bird habitat.</p>	Environment Canada		<p>This Act protects the migratory birds and their habitat found in the shore zone.</p> <p>It prohibits the deposition of oil, oily wastes or any other substance that may be harmful to migratory birds in any water or in any area frequented by migratory birds. No person shall disturb or destroy a nest or shelter of a migratory bird.</p>



**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

FEDERAL LEGISLATION	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
National Parks Act	<p>Provides for designation and acquisition of land for National Park purposes.</p> <p>Regulates use of public lands within parks.</p> <p>Provides for preservation of landmarks or objects of historic, prehistoric or scientific interest or national significance.</p> <p>Provides for protection of natural resources in parks.</p> <p>Regulates the management and development of parks.</p>	Environment Canada	<p>Applies to designated National Parks:</p> <ul style="list-style-type: none"> <li>• Point Pelee</li> <li>• St. Lawrence Islands</li> <li>• Georgian Bay Islands</li> <li>• Bruce Peninsula</li> </ul>	
Navigable Waters Protection Act	<p>Designed to keep public waterways free for safe navigation.</p> <p>Regulates the establishment of works in any navigable water including a canal, and any other body of water or altered as a result of the construction of any works.</p>	Transport Canada		Applies to the disposition of material, construction of docks or breakwaters, or the dredging of channels which may cause impairment to navigation.



**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

POLICIES AND GUIDELINES	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Foodland Guidelines	A proposed Policy Statement under Section 3 of the Planning Act outlines agricultural concerns that are expected to be incorporated into land use planning in order to ensure an adequate land base for agricultural needs in the future.	Ministry of Agriculture, Food and Rural Affairs/Ministry of Municipal Affairs	Agricultural lands within the moraine.	Guidelines describe methods of determining the agricultural importance of land and the incorporation of agricultural considerations into local planning. Lands with agricultural potential as well as lands already in agricultural use are considered resource lands. Documentation must accompany official plans where land is to be used for non-agricultural purposes and should address: the necessity for land use, the amount of land needed, reasons for the choice of location, and consideration given to lower capacity agricultural lands.
Wetlands Policy Statement	A Policy Statement under Section 3 of the Planning Act, to ensure that wetlands are identified and adequately protected through the land use planning process. To achieve no net loss of provincially significant wetlands.	Ministry of Natural Resources/Ministry of Municipal Affairs	Provincially Significant Wetlands	Protects provincially significant wetlands by not permitting any development in the wetland and requiring an Environmental Impact Statement for any activity in the 120 m adjacent area.
Policy for the Management of Fish Habitat	Provides a description of the goals and objectives for the management of fish habitat. Its goal is the net gain of fish habitat.	Department of Fisheries and Oceans	Any works affecting fish habitat.	Requires "no net loss" of fish habitat from undertakings. A hierarchy of preferences from mitigation to compensation are given.
Mineral Aggregate Resources Policy	A Policy Statement under Section 3 of the Planning Act designed to ensure that regard is paid to the importance of mineral aggregate resources and the overall provincial interest is taken into account in any related planning action.	Ministry of Natural Resources and the Ministry of Municipal Affairs	Mineral aggregate deposits within the Moraine.	Requires official plans to include policies to protect aggregate resources. Official plans may permit non-aggregate land uses in these areas if extraction is not feasible; the land use serves a greater long-term interest than extraction; or the use will not significantly hinder future extraction.
Growth and Settlement - Policy Guidelines	A Policy Guideline designed to set out and encourage sound principles of urban growth and settlement	Ministry of Municipal Affairs	Any urban growth regardless of location.	Requires official plans and related planning decisions to provide for clear, effective policies to guide urban growth and settlement patterns in municipalities.

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

POLICIES AND GUIDELINES	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Draft Valley & Stream Corridor Management Program		Metropolitan Toronto and Region Conservation Authority		Requires the preparation, adoption and approval of subwatershed plans and community reach plans prior to permitting alterations to stream corridors and watercourses to accommodate new urban development.
Flood Plain Planning Policy Statement	A Policy Statement under Section 3 of the Planning Act ensures that land use planning and resource management bodies consider flood plain management problems from the perspective of preventing loss of life, minimizing property damage and encouraging a coordinated approach to land and water management.	Ministry of Natural Resources and Ministry of Municipal Affairs  Delegated to Conservation Authorities where they exist.		Official Plans should delineate flood plains and prescribe uses permitted in these areas which consider flood susceptibility and flood risk and should address changes to existing structures on the flood plains. New development which is susceptible to flood damage or may increase damage to either upstream or downstream developments is prohibited.
Implementation Strategy: Areas of Natural and Scientific Interest	Policy outlines the methods that MNR will use to achieve protection and management of significant natural and scientific areas and parks.	Ministry of Natural Resources	ANSIs are areas of land and water containing natural landscapes which have been identified as having values related to protection, natural heritage appreciation, scientific study or education.	ANSIs are selected to protect both the life and earth science features not represented in Provincial Parks.  ANSIs that are of provincial significance and which are highly sensitive, threatened or endangered, may be regulated as nature reserves under the <i>Provincial Parks Act</i> . Where ANSIs occur on private land, MNR will attempt to ensure that landowners are aware of significant features on their property and seek cooperation in protecting these features, including regulating them as nature reserves.

**LEGISLATION, POLICIES AND GUIDELINES AFFECTING LAND USES  
IN THE OAK RIDGES MORaine**  
(continued)

POLICIES AND GUIDELINES	PURPOSE	ADMINISTRATING AGENCY	APPLICABILITY TO THE OAK RIDGES MORaine	LEVEL OF ENVIRONMENTAL PROTECTION
Land Use Planning for Housing Policy Statement	A Policy Statement under Section 3 of the Planning Act to require all planning jurisdictions in Ontario to consider the implications of their actions on the availability of housing to meet future needs.	Ministry of Municipal Affairs/Ministry of Housing	Applies to municipal official plans applicable to the Oak Ridges Moraine.	None, although like all policy statements, other provincial policies must be given equal consideration.
Oak Ridges Moraine Implementation Guidelines	<p>Guidelines endorsed by the Province of Ontario to assist in understanding the expression of provincial interest in the ORM.</p> <p>More specifically it outlines planning, design, and information requirements for development applications.</p> <p>An interim measure pending completion and implementation of an ORM Strategy.</p>	Ministry of Natural Resources/Ministry of Municipal Affairs/Ministry of the Environment and Energy	A Provincial Guideline that outlines eight principles of development that must be addressed when considering development applications in the ORM.	<p>Specifically addresses environmental issues such as:</p> <ul style="list-style-type: none"> <li>- growth and settlement</li> <li>- landform conservation</li> <li>- ecological integrity</li> <li>- significant natural areas</li> <li>- woodlands</li> <li>- watercourses and lakes</li> <li>- highly permeable soils</li> <li>- groundwater.</li> </ul>

## **APPENDIX D**

### **Settlement Areas**

**An excerpt from "A Vision for the Countryside", a Report  
of the Provincial-Municipal Countryside Working Group, pp. 36-42**



## SETTLEMENT AREAS

### BACKGROUND

Existing settlement areas play an important role as the focal point for residential, commercial, industrial, recreational and community activity within the GTA Countryside. Many of the Countryside settlement areas have a historical background and a heritage value that represents a strong cultural link to the early settlers of the area. Existing settlements within the GTA Countryside include small unserved communities, such as villages and hamlets, and larger, fully served or partially served communities which have higher order commercial, recreational, and institutional functions.

The expectations for these communities and their functions as rural settlements needs to be clearly defined in the context of the overall Countryside principles identified in the introduction to this report.

### PROBLEMS/ISSUES

The problems/issues identified by the Countryside Working Group concerning settlement areas in the Countryside are:

- The policies and mechanisms available to maintain the economic and social vitality of settlements in the Countryside need to be ascertained.
- The current roles of the various types of settlement areas within the Countryside need to be established.
- There are problems associated with the provision of private services. There is a need to address the cumulative impact of privately serviced development on the environment.
- Many settlement areas with municipal services are reaching capacity.
- There are significant economic, environmental, and social implications of extending urban services to settlements in the Countryside.
- Private servicing requirements result in larger new lots which are not compatible with the character of existing settlement areas.

## **OBJECTIVES**

In recognition of the need to provide direction for the growth and development of settlement areas, the Countryside Working Group identified the following key objectives:

- Strengthen and foster the heritage and economic vitality of settlements in the Countryside.
- Provide focal points of living and employment activity within the Countryside.

## **STRATEGIES**

### ***Municipal Official Plans***

***Settlement areas should be the focus for growth and development activity in the Countryside. Regional official plans should identify a hierarchy of settlement areas based on a community's present and future role and its suitability for growth from environmental, social and economic perspectives.***

The Countryside Working Group recommends that:

6.1 All regional municipalities should have approved Official Plans.

6.2 Regional Official Plans should establish a hierarchy for settlements as follows:

- |                       |   |   |
|-----------------------|---|---|
| Growth Centres        | ● | Primary focus for the majority of new residential and employment growth as well as the provision of goods and services for the Countryside. These settlements generally will be developed on full municipal services or as technology develops, by alternative systems.   |
| Rural Service Centres | ● | Existing settlements which are primarily residential in nature, usually focused on a small historic commercial core. Growth in Rural Service Centres will generally be restricted to developments which are related to, or service, the surrounding rural economy. Each centre is generally serviced by municipal water supply. |
| Hamlets               | ● | Existing settlements with a cluster of homes. Hamlets will have limited growth and commercial uses. Hamlets generally will be serviced by private wells and private sewage disposal systems.  |

6.3 Regional Official Plans should evaluate settlement areas based on servicing potential, environmental and social impacts. Development should only be permitted in those settlements which have been determined to be suitable for further growth.

6.4 Regional and local Official Plans formulate strategies for the development of compact settlement areas.



- 6.5 Local official plans should clearly establish the boundaries, size, growth rate, development phasing, and uses within settlements.
- 6.6 The growth of settlement areas in the Countryside must only take place as part of a comprehensive review of all such areas, their roles, and a justification of the need for expansion within the context of a regional Official Plan.

#### ***Environmental Considerations:***

***The impact of settlement area growth and development on the natural and cultural environment, including cumulative impacts, must be a primary consideration.***

The Countryside Working Group recommends that:

- 6.7 The essentially open character of the Countryside, including agricultural and natural areas, shall be the guiding value in considering other functions for settlement areas.
- 6.8 Growth of settlements should occur with careful consideration of the potential effects on the natural and cultural heritage environments.
- 6.9 Designated settlements should be the predominant location for development in the Countryside and this should be reinforced by firm local, regional, and provincial policies to prevent scattered development.

#### ***Servicing***

***Regional municipalities should undertake a comprehensive review of the current servicing capacity, servicing constraints, and servicing potential in all existing settlement areas.***

The Countryside Working Group recommends that:

- 6.10 Broad-based hydrogeological studies should be required prior to continued growth and development of settlement areas on private services.
- 6.11 The potential for improved technology for private septic systems and communal water and sewer servicing systems should be examined by the Ministry of Environment with regard to types of systems, feasibility, technical merits, and the responsibility for operation and maintenance.
- 6.12 The size of settlement should be related to, but not necessarily dictated by, the method of servicing.

## **SCATTERED RURAL RESIDENCES**

### **BACKGROUND**

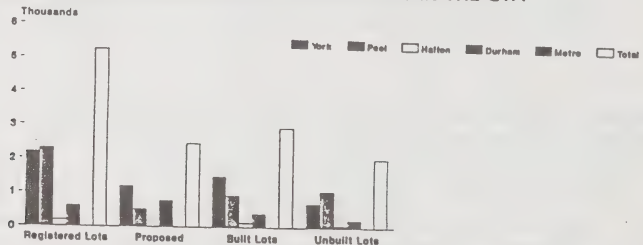
Scattered rural residences refers to severance and estate lots. There tend to be reasonably consistent and strong policies regulating scattered rural residences contained within the Official Plans of municipalities within the GTA where they are permitted.

There has been a strong effort in the past 10 - 15 years to protect prime agricultural land in the (CLI classes 1-4). Generally municipal estate residential policies exclude good agricultural land from the areas suitable for estate residential development.

A preliminary inventory of estate residential lots revealed that there are currently in excess of 5000 registered estate residential lots within the Countryside of the GTA. These lots have tended to focus on environmentally sensitive areas such as forested areas, adjacent to stream valleys, and in scenic rolling areas. The concentration of such lots in environmentally sensitive areas has been the result of provincial and municipal policies which by default direct estate residential subdivisions to these areas.

Although there is no information on absorption capacity within the real estate market for estate residential lots, information obtained by the Countryside Working Group indicates that of the over 5000 registered lots available in the GTA, approximately 3000 are built on, leaving 2000 registered vacant lots. These lots have been created over a time frame of approximately 20 years. An additional 2400 lots have been proposed throughout the GTA. Seen within this context, the current demand for estate-residential lots is perhaps less than what might be initially perceived. These homes are no doubt bought and sold as market conditions dictate and according to owners' life style changes.

Figure 6 - ESTATE RESIDENTIAL DEVELOPMENT IN THE GTA



## PROBLEMS/ISSUES

The following problems/issues were identified regarding estate residential development:

- Scenic natural areas such as the Oak Ridges Moraine tend to have lighter, more sandy soils with steeper grades which make the areas less attractive for farming. Areas such as the Oak Ridges Moraine, however, have the requisite scenic, rolling areas with broad vistas, and forested areas to which policies direct estate residential development.
- Decisions permitting scattered rural residential developments by local, regional and provincial governments have failed to take into account the proximity of each development to others. While one development may be "small scale", ten small scale developments can create a concentration which was never envisaged by any of the policies.
- The concept of cumulative effects has only recently been discussed relative to septic systems and their effect on ground water. In the past, it was held that, with sufficiently large lots, septic systems could continue to be a permanent method of sewage disposal for

estate residential and severance lots. More recent evidence suggests that this may not be the case. We do not, however, have a definitive means of predicting such cumulative impacts.

- Scattered rural residential uses are extremely land consumptive due to the large lots required for the proper operation of private septic systems.
- No definitive work has been completed to determine the cost of scattered rural residential lots to the various levels of government (e.g. garbage pick-up, fire protection) and to school boards (e.g. busing costs). There is a perception that since municipal water and sewer are not supplied to these lots, the high values of the homes and, their assessment and property tax represents a lucrative form of income for municipalities.
- Once estate residential lots have been developed, the residents generally place pressure on Council for services such as schools, better road networks, sewage, and water supply for both domestic and fire fighting purposes, especially in developments adjacent to fully serviced areas. The additional burden of local improvement lot levies to provide higher levels of servicing can make the costs for long term residents too high to maintain their previous lifestyle.
- Where scattered rural residences occur adjacent to fully serviced areas, a disruption to the rural/urban fringe occurs making normal expansion of that settlement area difficult both in the integration of the lot pattern, and urban form with respect to servicing.
- While the current policies on estate residential development all require that landscape and engineering studies be carried out in support of individual applications, there is no single administrative body or agency which does a comprehensive analysis of such documentation, nor which reviews the cumulative impact of all applications.
- The social and environmental implications of widely scattered, and perhaps isolated rural residential developments are difficult to quantify, however, the policing, fire protection and educational costs are known to be high.

## **OBJECTIVES**

The following objectives were identified regarding scattered rural residences:

- Direct non-farm rural residential and other development, to established and defined settlement areas.
- Curtail urban sprawl such as scattered rural residences until a complete understanding of the cumulative environmental, social and economic impacts is known.
- Protect the rural environment from the intrusion of incompatible rural residential uses which lead to demands for urban services (e.g. municipal sewer and water services).

## **STRATEGIES**

*Severely restrict the development of further scattered rural residences until more is known about the true environmental, social and economic costs associated with this form of development.*

The Countryside Working Group recommends that:

- 6.13 The provincial government in consultation with local governments develop an understanding of cumulative impacts and the means of measuring these impacts. In support of this, consideration should be given to a moratorium on the creation of estate residential lots until more is known about demands as well as cumulative impacts.
- 6.14 Official Plans should address estate residential as part of the Countryside settlement policies and require that each application for Official Plan Amendment include a comprehensive analysis of estate residential needs and demands, including an inventory of existing lots built and unbuilt and the proximity and status of other similar proposals. Policies should also require that an analysis of cumulative impacts be provided.
- 6.15 The Province should conduct a comprehensive study to examine the true social, economic, and environmental costs of scattered rural residential development.
- 6.16 Develop a data base on rural residential lots to provide a clear understanding of the status of existing lot inventories.
- 6.17 Private serviced estate residential development should not be permitted adjacent to serviced settlement areas.

## **COMMERCIAL/INDUSTRIAL**

### **BACKGROUND**

Existing commercial/industrial areas within the GTA Countryside are either part of settlement areas; private or communally serviced industrial parks along transportation routes (not necessarily related to settlement areas); or they take the form of scattered industrial/commercial uses, i.e. garden centres, building supply. The locations of these scattered uses are sometimes dictated by the nature of the business.

Key factors in selecting industrial locations include price and availability of land/buildings; property taxes; accessibility to roads; local bylaws and approval processes; proximity to home; and proximity to customers and clients.

Commercial and industrial development is an important economic activity which enhances a municipality's tax base and provides a source of employment within the Countryside.

### **PROBLEMS/ISSUES**

The following problems/issues were identified by the Countryside Working Group:

- It is difficult to attract commercial/industrial businesses without full municipal services. For example in areas without municipal water, communal wells are required in order to have reasonable fire insurance rates.
- Less desirable industries tend to locate in the Countryside due to lower land costs and extensive land requirements.

## **APPENDIX E**

### **Planning Implications**

**Table E1 - Planning Implications for Restricting Urban Uses  
in Sensitive Areas of the Oak Ridges Moraine**

**Table E2 - Planning Implications for Urban Uses in the  
Oak Ridges Moraine**



TABLE E1  
PLANNING IMPLICATIONS FOR RESTRICTING URBAN USES IN SENSITIVE AREAS OF THE OAK RIDGES MORaine

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
<b>PROTECTION OF HIGH QUALITY WOODLANDS</b> Avoid new urban uses in high quality woodlands	<p>Encourage all regional municipalities in the Moraine to restrict and/or regulate the destruction of trees. Establish by-laws for the protection of woodlands under the <i>Trees Act</i>.</p> <p>Provide enabling mechanisms to allow for easier use of stewardship tools, particularly land trusts and conservation easements of woodlands.</p> <p>Establish an acquisition fund for the protection of high quality woodlands.</p>	<p>Include policies in Official Plans that provide for the protection of woodlands.</p> <p>Pursue tree planting programs.</p>	<p>Require the replacement or compensation of woodlands destroyed through development.</p> <p>Ensure protection through:</p> <ul style="list-style-type: none"> <li>• assigning ownership to an appropriate public agency (preferred method)</li> <li>• conservation easements</li> <li>• joint tenancy agreements</li> <li>• site plan controls or special zoning restrictions</li> <li>• management agreements</li> </ul>
<b>PROTECTION OF VALUABLE AGRICULTURAL LANDS</b> Restrict urban uses on agricultural lands	<p>The GTA Municipal Countryside Working Group (1992) identified a number of initiatives to address this issue:</p> <ul style="list-style-type: none"> <li>• revisions need to be made to the <i>Planning Act</i> to require agricultural land protection policies to be reflected and implemented through upper tier Official Plans</li> <li>• a strong statement must be included in the <i>Planning Act</i> to deal with the importance of preserving the agricultural land base and the provincial interest in the development of agricultural land protection policies</li> <li>• the feasibility of agricultural land reserves (as currently exist in the provinces of Quebec and British Columbia) be considered</li> <li>• the feasibility of conservation easements or the transfer of development rights should be considered as options for protecting agricultural land (see McNab, 1992 - using conservation easements to preserve the farmer and the land)</li> </ul>	<p>The Countryside Working Group (1992) recommends that municipal Official Plans be prepared, and at a minimum, include:</p> <ul style="list-style-type: none"> <li>• priority agricultural areas to be identified and designated on land use schedules</li> <li>• strong policies on agricultural land protection be developed to give farmers security for long-term use</li> <li>• a moratorium on severances and site-specific official plan amendments for development on agricultural land until regional official plans are in place</li> </ul>	<p>Foster creative leasing agreements and land transfers to encourage farming by neighbours.</p>



TABLE E1  
PLANNING IMPLICATIONS FOR RESTRICTING URBAN USES IN SENSITIVE AREAS OF THE OAK RIDGES MORaine  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
<b>PROTECTION OF GROUND WATER RECHARGE AREAS</b>			
Avoid urban uses in recharge areas	<p>Undertake investigations and identify potential, high quality groundwater recharge areas throughout the Moraine.</p> <p>Encourage municipalities to include policies in Official Plans for the protection of groundwater recharge areas.</p> <p>Inventory and rate significance of recharge areas.</p> <p>Provide mechanisms for land stewardship and land trusts, conservation easements, and tax incentives.</p>	<p>Recharge areas in Official Plans that identify and protect potential recharge areas.</p>	<p>Recharge areas in developments may be protected by maintaining existing vegetative cover, storm water entering recharge areas should be treated to minimize contamination to groundwater supplies.</p> <p>Ensure protection through:</p> <ul style="list-style-type: none"> <li>• assigning ownership to an appropriate public agency (preferred method)</li> <li>• conservation easements</li> <li>• joint tenancy agreements</li> <li>• site plan controls or special zoning restrictions</li> </ul>
<b>PROTECTION OF HAZARD LANDS, STEEP SLOPES AND SOILS WHICH ARE HIGHLY SUSCEPTIBLE TO EROSION</b>			
Avoid urban uses in these areas	<p>Undertake investigations and identify lands.</p> <p>Encourage municipalities to include policies in Official Plans for the protection of hazard lands, steep slopes and highly erodible soils.</p> <p>Provide mechanisms for land stewardship.</p>	<p>Include policies in Official Plans that identify and protect potential recharge areas.</p>	<p>New development should incorporate design measures which restore degraded areas.</p> <p>Ensure protection through:</p> <ul style="list-style-type: none"> <li>• assigning ownership to an appropriate public agency (preferred method)</li> <li>• conservation easements</li> <li>• joint tenancy agreements</li> <li>• site plan controls or special zoning restrictions</li> </ul>
<b>PROTECTION OF WATERCOURSES AND RIPARIAN VEGETATION</b>			
Restrict development on steep valley walls which are sensitive to erosion and slope failure, organic and related alluvial soil on bottom lands, the stream and riparian vegetation corridors	<p>Protection and management strategy based on comprehensive watershed planning, subwatershed plans and storm water management plans.</p> <ul style="list-style-type: none"> <li>• define limits of the stream corridor (see Draft Valley and Stream Corridor Management Program, MTRCA, 1992)</li> <li>• provincial approvals under the <i>Lakes and Rivers Improvement Act, Public Lands Act, Fisheries Act, Policy for the Management of Fish Habitat, Flood Plain Planning Policy, Wetlands Policy</i></li> </ul>	<p>Plan and manage streams as part of the hydrologic cycle, considering all existing and proposed land use activities within the watershed.</p> <p>Official plans should:</p> <ul style="list-style-type: none"> <li>• identify streams and corridors as valuable natural features to be protected</li> <li>• identify intent to protect, rehabilitate or enhance stream corridors as part of the review and design of development and as part of a municipal strategy to rehabilitate degraded stream corridors</li> </ul>	<p>New development should incorporate design measures which restore degraded stream corridors.</p> <p>Ensure protection through:</p> <ul style="list-style-type: none"> <li>• assigning ownership to an appropriate public agency (preferred method)</li> <li>• conservation easements</li> <li>• joint tenancy agreement</li> <li>• site plan control or special zoning restrictions</li> </ul>

TABLE E1  
PLANNING IMPLICATIONS FOR RESTRICTING URBAN USES IN SENSITIVE AREAS OF THE OAK RIDGES MORaine  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
PROTECTION OF HIGH POTENTIAL AGGREGATE DEPOSITS  Restrict urban uses on high potential mineral aggregate deposits	Implementation of the <i>Aggregate Resources Act</i> and the <i>Mineral Aggregate Resources Policy</i> .  Investigate potential conflict areas with other policies, i.e. <i>Wetlands Policy</i> and the <i>Food Land Guidelines</i> .	<ul style="list-style-type: none"> <li>include stream corridors in appropriate open space or environmental protection designations; zoning by-laws should place stream corridors in an appropriate open space or EP zone or include restrictions that preclude the placement of buildings</li> </ul>	Construction practices should follow <i>Best Management Practices</i> (see also <i>Streams and Stream Corridors</i> , Discussion Paper #2, MNR, 1991).
		Identify resource protection areas in Official Plans, where extraction is permitted.  Prohibit extraction in sensitive natural areas such as woodlots, ANSIs, ESAs and headwater and recharge areas.  A municipal wide rehabilitation strategy (or master plan) consistent with existing or proposed land use designations be developed which all operators would be required to reflect in their rehabilitation plans, particularly in areas with multiple extraction operators.	Minimize impacts by conducting all extraction and processing in a manner which has the least harmful effects to the environment, particularly to ground water and surface water resources.  Rehabilitate back to agriculture those licensed aggregate operations that are located on high quality agricultural land.
PROTECTION OF SIGNIFICANT NATURAL AREAS  Avoid new urban uses in sensitive natural areas such as ESAs, ANSIs, wetlands, natural corridor linkages	The GTA Countryside Working Group recommended the following amendments to the <i>Planning Act</i> : <ul style="list-style-type: none"> <li>natural heritage features and systems including valley and stream corridors are not considered part of the developable land base</li> <li>environmental principles similar to those in the <i>Environmental Assessment Act</i> are added to the <i>Planning Act</i></li> <li>site preparation (e.g. removal of vegetation, grading/stockpiling of topsoil) cannot occur until all of the necessary development approvals have been given</li> </ul>	Countryside Working Group (OGTA) recommends (p.15): <ul style="list-style-type: none"> <li>through the official plan process, that regional municipalities clearly establish the limits of urban, rural and greenland envelopes</li> <li>local and regional official plans contain policy statements recognizing the importance and benefits of protecting and enhanced greenlands</li> <li>local and regional official plans contain policies which will apply to the protection of a greenlands network</li> </ul>	Ensure protection through: <ul style="list-style-type: none"> <li>assigning ownership to an appropriate public agency (preferred method)</li> <li>conservation easements</li> <li>joint tenancy agreements</li> <li>site plan controls or special zoning restrictions</li> </ul> (See also A Natural Heritage Framework Discussion Paper No. 1, MNR, 1991.)

# APPENDIX E

TABLE E1  
PLANNING IMPLICATIONS FOR RESTRICTING URBAN USES IN SENSITIVE AREAS OF THE OAK RIDGES MORaine  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
<ul style="list-style-type: none"> <li>• municipalities be required to designate, in their Official Plans, all known natural heritage features and systems within their jurisdictional boundaries</li> <li>• municipalities be required to include policies in their Official Plan, to protect designated natural heritage features and systems</li> <li>• the land and cash-in-lieu requirements of the park land dedication provision be increased to allow the development of linear and linked natural heritage systems</li> </ul> <p>The Countryside Working Group (CGTA, 1992, 16) also recommended that:</p> <ul style="list-style-type: none"> <li>• the province provide enabling mechanisms to allow for easier use of stewardship tools, particularly land trusts and conservation easements</li> <li>• encourage the use of land stewardships and education of landowners</li> <li>• acquisition of resource lands</li> </ul> <p>Relevant policies for protection include the <i>Wetlands Policy Statement, Policy for the Management of Fish Habitat</i>, as well as the proposed revisions to the <i>Trees Act</i>.</p>	<ul style="list-style-type: none"> <li>• municipalities be required to designate, in their Official Plans, all known natural heritage features and systems within their jurisdictional boundaries</li> <li>• the preparation of Heritage Master Plans becomes a required component of the municipal planning process</li> </ul>		

TABLE E2  
PLANNING IMPLICATIONS FOR URBAN USES IN THE OAK RIDGES MORaine

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
SOCIAL ENVIRONMENT ISSUES			
<p>Development in rural areas increases opportunities for outdoor/recreation experiences but puts pressure on these resources.</p> <p>Development in settlement areas protects rural open space areas but reduces resident's access to these areas and puts greater pressure on urban open space areas.</p>	<p>The GTA Countryside Working Group recommended the following for recreation and tourism:</p> <ul style="list-style-type: none"> <li>• develop mechanisms to help municipalities form partnerships to provide and manage inter-jurisdictional recreation resources</li> <li>• package the GTA with its Countryside as an attractive tourist destination, along with the consideration of the potential for eco-tourism</li> <li>• support land stewardship approaches to maximize public access to open space resources</li> </ul>	<p>The Countryside Working Group recommends the following:</p> <ul style="list-style-type: none"> <li>• Regional Official Plans should include recreation and tourism as a part of the planning process</li> <li>• Municipal Official Plans contain policies which direct high impact tourism and recreation development to urban areas</li> <li>• encourage low impact tourism and recreation development which is compatible with the natural and cultural resources of the Countryside</li> <li>• match recreation and tourism services and development to the function and character of settlement areas</li> <li>• identify and promote local strengths and address local weaknesses in tourism and recreation at the regional and municipal level</li> </ul>	
<p>There is a need to respond to demand for all housing types:</p> <ul style="list-style-type: none"> <li>• individual and cumulative development in rural areas may affect the character of the community through changes in built form, density and settlement patterns</li> <li>• individual and cumulative development in villages and hamlets may affect the character of the community through changes in built form, density and settlement patterns</li> <li>• individual and cumulative development in towns and cities may affect the character of the community through changes in built form, density and settlement patterns</li> </ul>	<p>See Commission on Planning and Development Reform in Ontario (CPDR) and MMA (1992) reports which outline initiatives to balance the demands for all housing development types with their associated effects.</p> <p>See also OGTa "A Vision for the Countryside", (1992) Strategies for Settlement Areas, (pp. 37, 38) and for Scattered Rural residences (pp. 38-40) and Commercial Industrial (pp. 41-42).</p>	<p>See MMA and CPDR, 1992 Reports which outline initiatives to balance the demands for all housing development types with associated effects.</p> <p>See also OGTa, "A Vision for the Countryside" 1992.</p> <p>Prepare Design Guidelines and Performance Standards (see next column for details).</p> <p>Municipal designation of heritage/special areas to preserve character.</p>	<p>Establish Design Guidelines and "Performance Standards" for the review of site plans which incorporate the following:</p> <ul style="list-style-type: none"> <li>• setbacks and lot sizes to conform with traditional existing development</li> <li>• parking at the side or rear of buildings</li> <li>• visual screening of machinery, storage areas, etc.</li> <li>• preservation/enhancement of roadside trees</li> <li>• control of lighting to maintain character</li> <li>• placement of buildings to maintain views</li> <li>• minimum design criteria for new building construction so that it may blend in with surroundings (e.g. height, massing, roof slopes, window proportions, materials)</li> </ul>

# APPENDIX E

TABLE E2  
PLANNING IMPLICATIONS FOR URBAN USES IN THE OAK RIDGES MORaine  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
<ul style="list-style-type: none"> <li>• there is potential for change in landscape character particularly in rural areas where the basic topographic character of the area is least disturbed</li> </ul>		<p>Encourage municipalities to undertake Town character plans that establish the Town's history and development patterns, and resident's consensus of what constitutes the Town's character and a scenic resources inventory. These plans are used as a basis for establishing conservation and development plans.</p>	<ul style="list-style-type: none"> <li>• guidelines for signage</li> <li>• design guidelines to protect water quality through location of storage area sand extent of impermeable materials</li> <li>• prohibition of excessive fumes, dust, vapours, odours</li> <li>• prohibition of glare (i.e. dazzling light or reflection)</li> <li>• restrictions on noise</li> <li>• restrictions for refuse disposal</li> <li>• access control guidelines</li> <li>• storm runoff guidelines</li> <li>• erosion control guidelines</li> </ul> <p>Examples of what can be achieved through Design Guidelines:</p> <ul style="list-style-type: none"> <li>• new development reflects existing settlement pattern and character of areas</li> <li>• zoning setbacks and lot sizes conform to existing areas</li> <li>• architecture of new developments are compatible with existing development</li> <li>• parking lots are screened</li> <li>• lighting is controlled</li> <li>• preservation of unique characteristics of existing area</li> <li>• utilities are underground where necessary to preserve/enhance character of existing area</li> <li>• road widths, character fits existing area</li> <li>• Protection of scenic views</li> <li>• architecture provides variations in scale, sense of character, ease of access</li> <li>• roads respond to topography (e.g. winding)</li> <li>• preservation of historic buildings.</li> </ul>

TABLE E2  
PLANNING IMPLICATIONS FOR URBAN USES IN THE OAK RIDGES MORaine  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
<p><b>ECONOMIC ISSUES</b></p> <p>Fragmentation of farm operations particularly in rural areas.</p> <p>Disruption to businesses (e.g. agriculture, aggregate extraction).</p> <p>Encroaching urban use changes nature and viability of farming and related farm agri-businesses (e.g. equipment sales) particularly in rural areas.</p> <p>Potential cumulative effects of multiple "small scale" developments on agriculture particularly in rural areas.</p> <p>Potential for demand for increased hard and soft services where development allowed in unserved areas (i.e. on individual services) with associated long-term costs.</p>	<p>The GTA Municipal Countryside Working Group identified a number of provincial and municipal initiatives to address these issues. These are as follows:</p> <ul style="list-style-type: none"> <li>• cumulative impact analysis should be a required component of municipal planning including an assessment of the impacts on agricultural resources (i.e. fragmentation of the land base, loss of productive agricultural land, increased land costs for agriculture)</li> <li>• the feasibility of conservation easements or the transfer of development rights should be considered as options for protecting agricultural land</li> <li>• tax measures be considered to discourage speculation and encourage the retention of agricultural land as an interim measure</li> <li>• a revised provincial land use strategy or policy on agricultural land to replace the outdated Food Land Guidelines is needed... It would assist in providing direction to municipalities, developers and the public on criteria to be considered when proposing to convert agricultural land to other uses.</li> </ul> <p>The Commission on Planning and Development Reform in Ontario (CPDR) has recommended two agricultural land policies directed at identifying and protecting agricultural land and restricting new lot development (policies D1 &amp; 2, B8 (d)).</p> <p>See Ministry of Municipal Affairs, Growth and Settlement Policy Guidelines 1-3 pp. 4-6, 1992.</p>	<p>The Countryside Working Group recommends that Municipal Official Plans must be prepared, and at a minimum, include the following:</p> <ul style="list-style-type: none"> <li>• delineate adequate urban growth boundaries based on appropriate population projections over a 20-year time frame</li> <li>• policies that require municipalities or the proponent to justify the need for urbanization of agricultural land</li> <li>• policies to assess the potential impacts of urban expansion on the remaining farm and agricultural service enterprises</li> <li>• policies to restrict severance activity</li> <li>• policies to restrict estate residential development</li> <li>• policies to direct growth in the Countryside to identified settlement areas</li> <li>• a moratorium on severances and site-specific official plan amendments for development on agricultural land until regional official plans are in place</li> </ul> <p>Emphasize intensification and redevelopment of existing urban areas and increase densities in redeveloped, proposed and new urban areas.</p> <p>Consider urban expansion only as part of a comprehensive review of urban land requirements and only during the five year review period for regional official plans, this is within the context of the 20-year time frame for delineated urban boundaries.</p>	<p>Preserve farmland and open spaces by clustering development within or at edges of settlement areas (see Dealing with Change in the Connecticut River Valley, Massachusetts Department of Environmental Management, 1990).</p> <p>Allow only small lot sizes for all areas where development is allowed (this may require communal sewer and water systems to protect groundwater resources).</p> <p>In rural areas, allow only moderate road widths and roads and driveways avoiding high quality farmland; use common driveways where possible.</p> <p>Foster creative leasing agreements and land transfers to encourage farming by neighbours.</p>



TABLE E2  
PLANNING IMPLICATIONS FOR URBAN USES IN THE OAK RIDGES MORAINÉ  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
Concentrated development reduces the potential for air quality effects, energy consumption and costs associated with reliance on transportation by automobile.	<p>See Ministry of Municipal Affairs (MMA) and Ministry of Transportation (MTO) Transit Supportive Land Use Planning Guidelines, 1992.</p> <p>See CPDR policies E1 to E4 on conservation and B5 on community development.</p>	<p>An agricultural education and information program should be established by the province, in cooperation with the regional municipalities; demonstration farms such as the one operated by the Peel Board of Education are an extremely effective means to promote the importance and value of agriculture to the public and educate the farming community in the areas of soil conservation and stewardship.</p> <p>Farmers and the public should be encouraged to have a greater awareness of the value of conservation agriculture and the stewardship role of farmers; this must be supported by technical advice and assistance to farmers through increased attention to proactive extension and demonstration programs.</p> <p>Develop a rural land database to update soil surveys, agricultural land use systems mapping, and statistics on agricultural land and farming activities.</p> <p>See CDPR (1992) recommendations D1 and D2 on Agricultural Land Policies.</p> <p>See MMA Growth and Settlement Policy Guidelines, 1 through 3 (General Settlement Areas).</p>	<p>Development be designed to conserve energy through road and street layouts and the siting of buildings for proper sun and wind orientation.</p> <p>Streetscapes designed to encourage pedestrians, cyclists and transit.</p> <p>Consider a farmland/operator conservation and development by-law which establishes specific criteria permitting creation of lots for subdivisions or severances.</p>

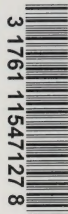


TABLE E2  
PLANNING IMPLICATIONS FOR URBAN USES IN THE OAK RIDGES MORaine  
(continued)

Issues	Provincial Initiatives	Municipal Initiatives	Design Specific Initiatives
<p><b>NATURAL ENVIRONMENT ISSUES</b></p> <p>Flood control (in towns and cities, communal storm water management can reduce the potential for flooding).</p> <p>Protection of surface and groundwater quality.</p> <p>Avoid disruption to natural areas, watercourses and lakes and natural corridors and open spaces.</p>	<p>Investigate the use of communal sewage and storm water systems in hamlets and rural areas, specifically the responsibility and maintenance issues.</p> <p>Protection and management strategy based on comprehensive watershed planning, subwatershed plans and storm water management plans.</p> <p>Review and approval of applications under the <i>Lakes and Rivers Improvement Act</i>, <i>Public Lands Act</i>, <i>Fisheries Act</i>, <i>Flood Plain Planning Policy</i>, <i>Wetlands Policy</i>.</p> <p>Establish by-laws for the protection of woodlands under the <i>Trees Act</i>.</p>	<p>Consider the cumulative effects of "small scale" developments in areas on private servicing.</p>	<p>Best management practices for storm water runoff, septic systems and controlled use of chemicals.</p> <p>Plans which show how best available design and construction practices will be used to protect resources. Require that performance criteria are met for the protection of significant features.</p>
<p>Avoid disruption to woodlands.</p>		<p>Include policies in Official Plans that provide for the protection of woodlands.</p>	<p>Alternative lot design to minimize loss of woodlots. These include:</p> <ul style="list-style-type: none"> <li>• woodlots in multiple private ownership with lots of sufficient size to designate building envelopes while protecting forests</li> <li>• forests designated as Open Space with development concentrated into the remaining land in the form of smaller lots</li> <li>• compact development forms with communal ownership of woodlands (see also Woodlands Discussion Paper NO. 3, MNR, 1993, p. 45-57)</li> </ul>







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